Brockville District Fisheries Management Plan

1987 - 2000

Ontario

Ministry of Natural Resources

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Minister

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PREFACE

The purpose of the Brockville District Fisheries Management Plan is to outline the long-term direction of fisheries management efforts in the Brockville District for the period 1987-2000. Further, it provides a way to measure the accomplishments of the district fisheries management program by both the managers and the public.

This document briefly describes the planning framework followed and provides an overview of the fisheries resources of the Brockville District, including significant information affecting their management. Fisheries management objectives and targets are stated and strategies and tactics to meet them are identified. An implementation schedule describes in detail how, when and where fisheries management activities in the five year period 1987-1991 are planned to be carried out. The actual timing and cost of specific projects will be determined in annual work plans.

Yearly updates of the implementation schedule and periodic revisions will keep the District Fisheries Management Plan current and responsive to changing needs and conditions.

T C Tibbett — July 26/88

District Manager — Date

J A Thurston — Sept 3/88

Regional Director — Date

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1.0 INTRODUCTION

1.1 Purpose

The purpose of this District Fisheries Management Plan is to provide long-term (1987-2000) direction for the management of the fisheries resource and to identify specific short-term (5 year) management actions to be carried out on waters within the Brockville District of the Ontario Ministry of Natural Resources.

1.2 Planning Process, Existing Policy and Technical Direction

The Brockville District Land Use Guidelines (D.L.U.G.) (M.N.R. 1983) provided direction for the preparation of the fisheries management plan. The Land Use Guidelines outline objectives, targets and strategies for resource management in the district and were developed as part of the Southern Ontario Coordinated Program Strategy (S.O.C.P.S.) (M.N.R. 1982). Included in the Land Use Guidelines were fisheries targets which have been refined in the present fisheries management planning exercise. The Strategic Plan for Ontario Fisheries (S.P.O.F.) also provided technical direction for the preparation of Fisheries Management Plans. S.P.O.F. was developed in the 1970's to provide a Ministry-wide strategic planning overview for Ontario's fisheries.

This fisheries management plan was prepared in accordance with the Ministry of Natural Resources integrated resource management planning system (M.N.R. 1986a) and the district fisheries management planning manual (M.N.R. 1986b). Resource management planning is undertaken to ensure that programs and activities are integrated as required to achieve specific targets* and objectives, to invite public input during the planning exercise, and to provide managers with direction on how resources are to be managed.

* See Glossary pp. 44-47 for definition of terms.

Public consultation was solicited at two stages in the preparation of this plan. A document summarizing the Background Information and Optional Management Strategies and Tactics was distributed to the public and the information contained therein was presented at a public meeting in February, 1987. A draft fisheries management plan was prepared incorporating the responses received during this initial consultation. Public review was encouraged by distributing a summary of the draft plan and holding a second public meeting in October, 1987. The final plan reflects the public response received throughout the fisheries management planning exercise.

The final fisheries management plan only summarizes the results of background studies and analyses which were undertaken as part of the planning process. Background documents are available for viewing in the Brockville District Office and include the following:

(i) Brockville District Fisheries Management Planning Terms of Reference (McDonnell 1986a).

(ii) Brockville District Fisheries Management Plan, Background Information (McDonnell 1986b).

(iii) Brockville District Fisheries Management Plan, Background Information, Optional Management Strategies and Tactics, 1987-2000, A Summary. (M.N.R. 1987a).

(iv) Draft Brockville District Fisheries Management Plan, 1987-2000. (M.N.R. 1987b).

(v) Summary of Public Consultation Carried Out During the Brockville District Fisheries Management Planning Process. (M.N.R. 1987c).

2.0 DISTRICT FISHERIES PERSPECTIVE

2.1 Introduction

The boundaries of Brockville District correspond to those of the United Counties of Leeds and Grenville. The location of the District within Eastern Region is shown in Figure 1 and a detailed description of the District is given in Map 1 (back cover pocket).

The population of the United Counties of Leeds and Grenville was about 81,000 in 1980. Of the anglers who fish in District waters, however, only 20% live locally, while the rest are Ontario residents from outside Leeds and Grenville Counties (34%), or non-residents from the United States or other provinces (Bedi and Clifford 1980).

Brockville District covers 360,460 hectares (3,605 square kilometers or 1,392 square miles), which includes a water surface area of about 61,170 hectares. The Canadian portion of the St. Lawrence River comprises slightly more than one-half of the total area of District waterbodies, with inland lakes accounting for most of the remainder. The majority of land in Brockville District, about 93%, is privately owned.

There are two distinct land areas in the District. In the western one-third of the District, the land is underlain by an extension of the Canadian Shield called the Frontenac Axis, which joins the Adirondack Mountains. This area is characterized by rough terrain with outcrops of bedrock and deep, coldwater lakes. The eastern two-thirds of the District is typically flat or slightly rolling terrain of shallow, poorly drained, stony soil of generally poor agricultural potential. This area has several large creeks and relatively few lakes which are dominated by warmwater fish communities.

There are three major watersheds within the District, the Rideau Valley, the Cataraqui, and the South Nation River. The St. Lawrence River forms the southern boundary of the District and is an important waterbody with special considerations because of its international

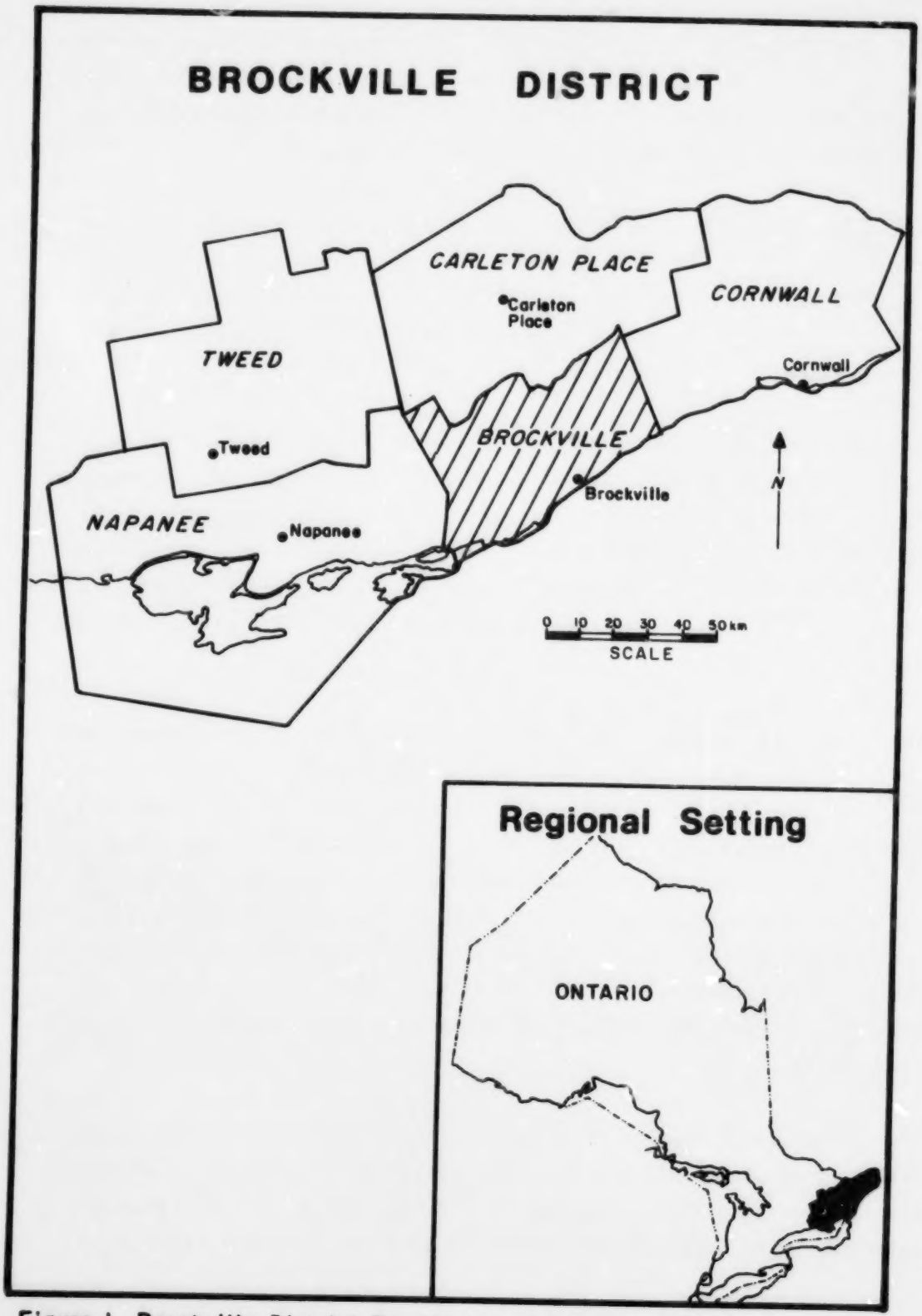

Figure I. Brockville District Boundaries and Regional Setting

nature. As one of the five major rivers in Southern Ontario, its large volumes of cool water drain the Great Lakes to the Atlantic Ocean.

A portion of the Rideau Canal is located in Brockville District. The Canal is a man-made system of interconnected rivers and lakes linking Kingston and Ottawa. There are 24 dams and 14 locks along this waterway, and 11 of the lakes are in Brockville District's portion. Water levels in the entire system are controlled by Parks Canada in consultation with a multi-agency committee.

2.2 The Resource

There are seven coldwater lakes in Brockville District (Table 1). These deep, cold lakes with high dissolved oxygen levels favour species such as lake trout, brook trout and lake whitefish. Charleston, Big Rideau, Red Horse, Otter and Indian Lakes support lake trout fisheries, although the latter two contain very marginal lake trout populations and are currently being stocked with splake. Charleston and Big Rideau Lakes are lake trout lakes with natural reproduction, which is supplemented by annual lake trout stocking. Both lakes are subject to heavy angler exploitation. Mud and Basin Lakes are tiny coldwater lakes located just south of Charleston Lake. These lakes are stocked annually with brook trout and support put-grow-and-take fisheries.

There are 64 warmwater lakes in Brockville District (Table 1). These relatively shallow, fertile, warm lakes support fish species such as largemouth bass, smallmouth bass, northern pike, walleye and yellow perch. Angling for smallmouth and largemouth bass and trophy northern pike is excellent in many of these lakes which range in size from ponds to large lakes of 1800 ha.

There are 415 km of rivers and streams in the District, not including the St. Lawrence River (Table 1). Willy's Brook is the only small coldwater stream currently supporting brook trout. The rest are generally warm, relatively slow-moving streams with heavy aquatic

TABLE 1: SUMMARY OF FISHERIES RESOURCE DATA IN BROCKVILLE DISTRICT

	Number	Total Surface Area (ha)	Total Potential yield (kg/year) (all species combined)
INLAND LAKES			
Coldwater	7	9,492	45,560
Warmwater	64	11,906	100,390
INLAND RIVERS & STREAMS			
Coldwater	1	10	51
Warmwater	21	3,576	107,290
TOTAL INLAND WATERS	93	24,984	253,290
ST. LAWRENCE RIVER	-	35,474	514,820
TOTAL ALL WATERBODIES	94	60,458	768,110

plant growth. These streams contain smallmouth and largemouth bass, northern pike and yellow perch, with walleye and muskellunge present in a few. Many of the smaller streams dry up in the summer or are reduced to sluggish, weed-choked trickles.

The Rideau River provides an open water fishery for walleye and bass as well as active walleye ice fishery. There are muskellunge in the Rideau, however, the status of the population is not known.

The Canadian portion of the St. Lawrence River within the Brockville District boundaries includes 35,500 hectares, and provides about two-thirds of the District's potential fish production. Fish species in the River include largemouth and smallmouth bass, northern pike and yellow perch, and angling is excellent for these species. There are muskellunge populations in the St. Lawrence although they have experienced over-exploitation and habitat degradation problems in the past. Walleye are not abundant in this stretch of the River but it appears that there is potential for a population expansion from the east and west where resident populations are increasing.

A summary of the fisheries resource data of Brockville District is presented in Tables 1 and 2. In these tables "total potential yield" is calculated from biological statistics for each lake and is the theoretical maximum production that can be harvested annually without exhausting the compensatory reserve of a fish community. The total potential yield cannot be met today as many District waterbodies are producing fish below their potential because of factors such as spawning bed degradation and water level drawdowns during critical periods such as egg incubation and fry emergence.

2.3 Current and Projected Resource Use

Sport Fishing - According to a 1980 survey of Ontario's anglers, there are 85,600 anglers who fish in Brockville District, of which 46% are non-resident (U.S. or Quebec residents) anglers. (Bedi and Clifford 1980).

TABLE 2: TOTAL POTENTIAL YIELD FOR BROCKVILLE DISTRICT LAKES AND RIVERS PARTITIONED BY SPORT FISH SPECIES.*

Sport Fish Species	Number of Waterbodies	Total Known Water Area Available to Species (ha)	Total Potential Yield (Kg/yr)
INLAND WATERBODIES			
Lake Trout	5	9,481	9,990
Brook Trout	3	21	140
Largemouth Bass	53	21,902	9,190
Smallmouth Bass	44	21,936	50,330
Walleye	14	11,895	38,320
Northern Pike	68	24,083	57,480
Yellow Perch	63	55,166	29,290
Lake Whitefish	3	8,613	8,780
Muskellunge	1	3,101	3,160
TOTAL			206,680
ST. LAWRENCE RIVER			
Largemouth Bass		35,474	25,740
Smallmouth Bass		35,474	128,700
Walleye		35,474	29,540
Northern Pike		35,474	110,190
Yellow Perch		35,474	66,930
Muskellunge		35,474	25,740
TOTAL			386,840
GRAND TOTAL			593,520
TOTAL FOR COLDWATER SPECIES			10,130
TOTAL FOR WARMWATER SPECIES			583,390

* The total potential yield for each waterbody was partitioned into individual species yields which represent the portion of the production of a waterbody available to each species.

Creel survey information was used to derive an estimate of current angler use of the resource in terms of the amount of recreation and the amount of fish harvested in kilograms. These figures are presented for coldwater (lake trout) and warmwater species (smallmouth and largemouth bass, northern pike, walleye, yellow perch) and for Resident and Non-Resident anglers, and are summarized in Table 3.

In order to calculate future use of the resource, it is assumed that the number of anglers will increase by 15% by the year 2000. The allowable yield figures in Table 3 originate in Table 2, and represent the annual harvest that District waterbodies can support once the fisheries have been rehabilitated and are producing at their maximum sustainable level.

Currently, anglers spend 46,460 angler days harvesting 23,703 kg of coldwater species, which in Brockville District is comprised almost entirely of lake trout. However, the allowable yield of lake trout is only 9,990 kg (the total coldwater species yield is 10,130 kg), which indicates that lake trout populations are over-fished by more than twice what they can sustain.

Approximately 427,530 angler days are currently spent harvesting 180,671 kg of warmwater fish such as bass, pike, walleye and perch (Table 3). The allowable yield for warmwater species is 583,390 kg, so in general, warmwater species are not being over-harvested, even with a 15% increase in use to the year 2000. However, overharvest of walleye and muskellunge does occur in some waterbodies in the district.

Commercial Food Fishing - In 1985, there were 15 licenced commercial food fishermen in Brockville District who harvested 51,680 kg of fish with a value of about $105,660. Most of the fishery is in the St. Lawrence River although many of the inland lakes are fished as well. The commercial fishery is almost entirely an impounding gear fishery and harvests are regulated by a quota system. These fishermen do not take sport fish species but concentrate on species such as brown bullhead, sunfish, yellow perch, black crappie and other coarse fish. High contaminant levels in carp and eels have resulted in a restricted

TABLE 3. Fisheries target refinement for Brockville District

	CURRENT USE		PROJECTED USE		DLUG	TARGET	ALLOWABLE YIELD	INTERIM REFINED TARGET	
	doz/kg	Angler Day	doz/kg	Angler Day	doz/kg	Angler Day	doz/kg	doz/kg	Angler Day
COMMERCIAL FISHERY									
Baitfish (doz)	40,930	-	47,070	-	57,500	-	-	47,070	-
Food Fish (kg)	94,780	-	223,300	-	66,000	-		223,300	-
SPORT FISHERY									
Users									
Residents (kg)	-	254,055	-	292,160	-	-		-	-
Non-Residents (kg)	-	219,925	-	252,920	-	-		-	-
TOTAL	204,374	473,990	235,040	545,090		1,793,000	593,520	255,820	541,610
Assemblage									
Coldwater (kg)	23,703	46,460	27,260	53,430	-	107,580	10,130	10,130	50,650
Warmwater (kg)	180,671	427,530	207,780	491,660	-	1,685,420	583,390	245,830	491,660
TOTAL	204,374	473,990	235,040	545,090		1,793,000	593,520	255,960	542,310

harvest of these species. The current and projected harvests of commercial food fishermen are summarized in Table 3.

Commercial Bait Fishing - Baitfish harvest is widely distributed over the District, almost every waterbody is harvested although not every year. The baitfish industry is small yet viable. In 1985 there were 31 commercial bait fishermen who harvested 49,590 dozen bait fish. The reported value of this catch was approximately $124,200. Golden shiners are the most commonly caught species but emerald shiners, suckers, dace, herring and common shiners are also harvested.

It is estimated that the demand for bait fish will increase to the year 2000 since the number of anglers is expected to increase by 15% (Table 3).

2.4 Problems and Issues

This section summarizes the problems and issues that face the fisheries of Brockville District.

(a) Loss of Fish and Fishing Opportunities - Coldwater Species

Lake Trout - There are five lake trout lakes in Brockville District; Charleston, Big Rideau, Red Horse, Otter and Indian. Charleston and Big Rideau Lakes support naturally reproducing lake trout populations which are supplemented by annual stocking. Over-harvest is a problem in both lakes, but is excessive in Charleston Lake where more than double the estimated allowable yield in lake trout is taken every year. The other three lake trout lakes do not support naturally reproducing lake trout, and two of these (Otter and Red Horse Lakes) are stocked annually. Lower Beverley, Otter and Indian Lakes have been stocked with splake in an attempt to provide alternate salmonid fisheries.

Water level fluctuations on Charleston and Big Rideau Lakes have had an adverse affect on lake trout spawning, and declining water quality and physical destruction of spawning shoals have also taken their toll.

The problems associated with lake trout lakes in eastern Ontario are being addressed on a regional basis. As part of the lake trout management planning process, a series of public meetings were held in 1985 to present various management options and solicit public input. Strategies for managing lake trout in eastern Ontario were adopted as a result of the planning exercise and are included in the Brockville District Fisheries Management Plan.

Lake trout over-harvest is a problem being experienced over most of Ontario, and there is currently a provincial lake trout committee composed of representatives from M.N.R., Ontario Federation of Anglers and Hunters, and Northern Ontario Tourist Outfitters, which is examining the lake trout issue province-wide and will be providing

management recommendations.

Fishing Derbies - Fishing derbies add to fishing pressure on species such as lake trout which are already stressed by over-exploitation. Derbies which target other species which are not being over-harvested, e.g. panfish and carp, are not considered harmful.

Brook Trout - Both Mud and Basin Lakes are annually stocked with brook trout but the extent of angler use of these two lakes is not known. Access to both lakes is by hiking trail. One lake is located completely on private land, and the other is within a Provincial Park Reserve.

(b) Loss of Fish and Fishing Opportunities - Warmwater Species

St. Lawrence River - The St. Lawrence River provides more than one-half of the District's potential yield and is an extremely important waterbody in terms of sport and commercial fish production. Unfortunately, in spite of its importance, very little is currently known about fish community dynamics, potential yields or exploitation levels on the River, however, it appears that current use does not approach the potential yield. The St. Lawrence River Fisheries Management Unit was established in 1987 and is currently conducting assessment programs on all Ontario waters of the River. (Cholmondeley 1987).

Muskellunge - Muskellunge in the St. Lawrence River have probably experienced over-exploitation problems for quite a long time, although there are no historical data available to assess the problem. Recent survey information indicates a declining catch per unit effort, and habitat deterioration has been a problem. There is currently a joint effort between the New York State Department of Environmental Conservation and the Ontario Ministry of Natural Resources aimed at rectifying the problem of insufficient data. Size and creel limits for muskellunge have been in place for several years.

There is also a muskellunge population in the Rideau River downstream

from Smiths Falls. Although it appears that exploitation is not a problem at present, very little is known about this population or its use by anglers, and critical habitat has not been identified.

Walleye - Several local walleye fisheries have suffered in recent years. The fisheries were formerly strong in Upper Rideau and North Crosby Lakes, but there is evidence that over-exploitation and habitat deterioration because of silt, algae and aquatic plant accumulation on spawning beds have contributed to their decline. The age structure on Upper Rideau Lake is typical of a collapsed population. Significant walleye populations also exist in several stretches of the Rideau River downstream from Smiths Falls. These populations are heavily exploited, and water level fluctuations on the system have a negative impact on spawning success. Dams are controlled by Parks Canada and water levels are managed for navigation and flood control as well as fisheries.

Walleye have never been abundant in Brockville District's portion of the St. Lawrence River, but since walleye populations have burgeoned both upstream (Bay of Quinte area) and downstream (Lake St. Lawrence/Hoople Creek), there is the possibility of these populations expanding into the Brockville District section of the river.

Sanctuaries - There are 11 year-round fish sanctuaries in Brockville These sanctuaries were established in the 1960's to protect smallmouth and largemouth bass spawning activities. The effectiveness of the sanctuaries in terms of their contribution to bass production is unknown, however, the problem of incidental catch of bass during the closed season is eliminated in these areas. There is considerable public support for the retention of the sanctuaries.

Size Limits - Size limits are in effect for bass and walleye in Division 10, and are intended as a technique of harvest control and breeding stock protection. The impact of size limits on recruitment is not known, however, there is public support for their retention.

(c) Loss of Environmental Quality

Watershed and Shoreline Alteration - Dredging, filling, and stream channelization are activities that affect the fisheries on almost every waterbody in the District. The littoral zone is the narrow band of shallow water around the shoreline of every lake where the most productive fisheries habitat is found. Since most lakes and rivers are heavily cottaged, development pressures for shoreline alterations in the littoral zone are intense as cottagers build docks, dredge for boat or swimming access, and build retaining walls. These activities effectively remove critical fisheries habitat and contribute to a reduction of the productivity of the lake. Although landowners must apply to various government agencies for approval to do this sort of work, there are several procedural and logistic difficulties.

Dredge and fill operations are a concern because they physically disrupt or destroy the critical littoral zone and add silt and nutrients to a waterbody. The incremental loss of wetlands and littoral zone add up to a significant loss of these sensitive areas over the long term.

Nutrient Enrichment, Siltation, and Aquatic Plant Proliferation - Nutrient enrichment and siltation are problems facing most of the District's lakes and rivers. Nutrients generally originate from either agricultural or domestic sources such as improperly installed or maintained septic tanks, tile beds or sewage treatment facilities from large towns. Excess nutrients cause aquatic plants and algae to proliferate. Lake trout spawning shoals on Charleston Lake are deteriorating in quality because they are covered by silt, detritus and aquatic plants. Several walleye spawning shoals have suffered the same problem, so that walleye spawning success has drastically declined in recent years.

Water Level Fluctuations - Water level fluctuations on several District lakes have caused problems. For example, water level management on Charleston Lake has not always considered the best interests of lake trout, and draw-downs during the critical fall and winter period have had a negative impact on spawning success. Water

level problems also occur on the Rideau system, affecting lake trout on Big Rideau Lake and walleye on the Rideau River downstream from Smiths Falls. On Big Rideau Lake, for example, the water has been drawn down in late winter to flush ice jams from the City of Ottawa, leaving the unhatched lake trout eggs without a covering of water and susceptible to ice scouring.

Contaminants - In 1978, contaminant sampling in the St. Lawrence River revealed excessive levels of mercury and polychlorinated biphenols in carp and channel catfish. The commercial harvesting of these species was curtailed until 1979 and in recent years size restrictions have been placed on these species. Several sport fish species in the St. Lawrence River and in inland waterbodies have been tested for contaminants over the years, and there are consumption restrictions placed on some, although the worst problems are in the River. Fish production is probably not affected by the presence of contaminants.

The potential for severe environmental damage by a spill of a noxious substance is great. The Highway 401, St. Lawrence Seaway, and the main east/west C.N.R. railway line are all major traffic corridors for carriers of very large quantities of some potentially lethal substances.

(d) Commercial Food and Bait Fishing

Commercial Food Fishing - There are a number of issues relating to commercial food fishing, such as under-utilization of assigned quotas, inactive licencees, restrictions on consumption due to contaminants, and competition among fishermen. The potential for harvest of food fish is much greater than the amount actually taken because of these problems. New markets for unexploited species should be developed to help maintain the industry's viability.

Commercial Bait Fishing - There is a lack of information available on baitfish management and presently there is no means of calculating potential baitfish yields. Demands for baitfish are not met by District harvesters because of the physical difficulties of harvesting at times of peak demand (July and August) when waterbodies are choked

with aquatic plants. Baitfish are imported from other areas of Ontario during these periods. The culture of baitfish should help solve this problem but there is very little propagation information available which is specific to Ontario. There are a few localized conflicts amongst baitfish harvesters who compete for the same baitfish stocks.

Angler/Commercial Food Fishermen Conflicts - There are no serious conflicts between these two user groups, but some minor problems have arisen in the past. Commercial food fishermen are not licensed to take sport fish species, but sometimes anglers resent the real or perceived impact of commercial fishing activities on sport fishing. In addition, licence restrictions designed to minimize conflicts with anglers occasionally lead to dissatisfaction among commercial food fishermen.

(e) Provincially Rare and Endangered Fish Species

Two species found within Brockville District boundaries have assigned status or designation according to the Committee for the Status of Endangered Wildlife in Canada (C.O.S.E.W.I.C.). Pugnose shiner (Notropis anogenus) are found at the outlet of Lake Ontario, near the mouth of the Gananoque River and are considered rare. Lake sturgeon (Acipenser fulvescens) are found in the St. Lawrence River and while this species was once abundant, it is now low in numbers across the province. The St. Lawrence River commercial sturgeon fishery was closed in 1985 and the angling fishery will likely be closed in the future.

(f) Communicating With The Public

Lack of Public Awareness - Managing a fishery and its diverse user groups to achieve the goal of providing fishing opportunities both now and in the future is a difficult task and the Ministry of Natural Resources has not been successful in communicating the complexities of this task to the public. The problem of a lack of understanding by the public occurs over much of the Province of Ontario and often leads to unrealistic demands which the fisheries resource cannot supply. In

addition, the impact of various land use practices on fisheries habitat and the importance of minimizing the degradation of this habitat in order to maintain healthy populations is not well understood by the public. Some of the conflicts between public expectations and government targets will be alleviated by improved communication and better public education programs.

Illegal Harvest - Illegal activities are probably not as serious today as they were in the past, but they do continue to impact some populations. Preseason bass angling, destruction of fisheries habitat, and spearing of walleye on spawning grounds and muskellunge through the ice are all illegal activities that occur in District waterbodies.

(g) Lack of Scientific and Technical Knowledge

Data Quality and Quantity - Lack of current knowledge of the characteristics of Brockville District fish populations such as abundance, growth rate, age and size of maturity, and stressing factors limits the ability of M.N.R. to detect problems and provide timely solutions. There is a need for collection of data allowing assessment of the status of fish communities in District waterbodies.

Potential Yield Estimates - Estimates of the potential yield of Brockville District waterbodies were derived using the best techniques currently available. However, at present, fisheries science is not capable of perfectly estimating yield for all types of waterbodies, or partitioning yield into individual species yields. In addition, estimates are based on information for District lakes which was old and perhaps out of date, yet was the best available.

3.0 MANAGEMENT DIRECTION

The purpose of this section is to bring together the management directions provided through previous planning exercises (e.g. Strategic Planning for Ontario Fisheries, District Land Use Guidelines, Southern Ontario Coordinated Program Strategy, and Inland Lake Trout Management in Eastern Ontario), and the present fisheries management planning process and express these as strategies for management of fisheries in the district.

3.1 General Fisheries Management Objectives

The objectives of fisheries management in southern Ontario are to provide opportunities for recreational fishing and to realize economic benefits derived from commercial and bait fisheries consistent with the maintenance of healthy fish communities.

Specific objectives for Brockville District fisheries are:

- to meet demand for sport fishing within the limits of a wisely managed and rehabilitated resource;
- to maintain a viable commercial fishing industry;
- to maintain current production of bait-fish;
- to prevent the extinction of any native fish species; and
- to increase public understanding and appreciation of the principles relating to natural resources and their management.

The following section contains the strategies and tactics which will address the problems and issues discussed in Section 2.4 of this plan. A strategy is a plan or course of action designed to meet a given objective, and is problem-oriented. Tactics are specific actions which relate to each strategy and cumulatively contribute to the attainment of the objectives.

3.2 Sport Fisheries

The target for sport fishing as originally presented in the Brockville District Land Use Guidelines (1983) was to provide 1,793,000 recreation opportunities by the year 2000. This target has been refined as more information has become available and has been broken down into coldwater and warmwater species targets. The new and more realistic target is 542,310 angler days (Table 3). A brief discussion of how the target was developed precedes the selected management strategies and tactics.

3.2.1 Coldwater Fisheries

Based on an expected human population increase of 15%, there is an anticipated demand of 53,430 angler days and a harvest of 27,260 kg for coldwater species. However, as already discussed, the allowable yield for coldwater species is only 10,130 kg, and this is therefore the target for the year 2000. If we assume a catch standard of 0.2 kg per angler day, this will provide 50,650 angler days of recreation by the year 2000. It is obvious that some serious measures will have to be undertaken to reduce the harvest and protect the existing resource while maintaining fishing opportunities. Selected management strategies and tactics are summarized as follows:

LOSS OF FISH AND FISHING OPPORTUNITIES - COLDWATER FISHERIES

PROBLEM/ISSUE: LAKE TROUT ARE OVER-HARVESTED ON ALL LAKES - CURRENT HARVEST IS MORE THAN DOUBLE THE ALLOWABLE YIELD.

Strategy	Tactic
1 Reduce harvest of lake trout to calculated allowable yield.	1 Continue winter closure of fishing in Charleston, Big Rideau and Red Horse Lakes.
	2 Reduce creel limit from 3 to 2 lake trout per day on Charleston, Big Rideau and Red Horse Lakes.
	3 Ban the possession and use of herring as bait.
	4 Review of lake trout regulations by provincial

committee may provide other harvest control measures such as quotas and season changes.

2 Protect genetic integrity of native lake trout.

1 Evaluate feasibility of stocking Charleston Lake with lake trout yearlings originating from Charleston Lake stock. (Co-operative project with Rideau Lakes Fisheries Assessment Unit).

2 Continue stocking Charleston, Big Rideau and Red Horse Lakes only as long as necessary; reduce stocking if/when stocks are rehabilitated.

3 Divert angling pressure away from native lake trout by improving or providing additional coldwater angling opportunities.

1 Provide coldwater fishing opportunities by stocking suitable lakes with Fl splake.

2 Liberalize season and creel limits for Fl splake.

3 Continue stocking Red Horse Lake with approximately 5,000 lake trout fingerlings and manage as put-grow and take fishery (annual stocking).

4 Continue stocking Otter Lake with lake trout and Fl splake fingerlings; manage as put-grow and take fishery for lake trout and Fl splake.

5 Rehabilitate Lyn Creek to make it suitable for stocking with brown trout (dependent upon landowner agreements for public access).

6 Assess other streams (Leeders, Buell's, Butler's, LaRue) for potential for rehabilitation and stocking with brook or brown trout.

7 Continue annual brook trout stocking in Mud and Basin Lakes.

8 Secure public access to Basin Lake by landowner agreement, if angler use warrants continuation of stocking.

		9 Reclaim (coarse fish removal) Mud and Basin Lakes if angler use warrants and coarse fish are over-abundant. Restock with brook trout.
	4 Evaluate effectiveness of salmonid stocking program	1 Assess effectiveness of stocking 3 District lakes with F1 splake by determining splake growth, survival and angler use through creel surveys.
		2 Assess effectiveness of F1 splake stocking (growth and survival) through index netting.
		3 Assess effectiveness of lake trout stocking (growth and survival) through creel surveys and index netting.
		4 Assess effectiveness of stocking brown trout in Lyn Creek (growth and survival) through electrofishing.
		5 Assess angler use of Mud and Basin Lakes by performing winter creel surveys.
		6 Assess effectiveness of brook trout stocking (growth and survival) through index netting.

PROBLEM/ISSUE: SOME FISHING DERBIES HAVE A HARMFUL IMPACT ON FISH POPULATIONS (LAKE TROUT)

Strategy	Tactic
1 Manage fishing derbies in accordance with provincial policy.	1 Encourage organizers to terminate lake trout derbies.
	2 Support derbies targetting non-sportfish species.
	3 Evaluate impact of lake trout (and other) derbies on the fishery resource.

PROBLEM/ISSUE: PUBLIC AWARENESS ABOUT LAKE TROUT AND ITS HABITAT IS LACKING.

Strategy	Tactic
1 Provide more information to the public about lake trout and lake trout management.	1 Perform public consultation/ education program to inform anglers before any new regulations

(See Loss of Environmental Quality section, p. 32, for other applicable tactics)	are passed. 2 Make lake trout harvest information readily available to the public. 3 Attempt to foster greater stewardship of resource among lake trout anglers by educating public on the species, its attributes and management problems. 4 Produce an information brochure about lake trout management in southeastern Ontario.

PROBLEM/ISSUE: LAKE TROUT SUFFER FROM HABITAT DETERIORATION ON ALL DISTRICT LAKES.

Strategy	Tactic
1 Protect and improve lake trout spawning habitat in lakes being managed for lake trout. (See Loss of Environmental Quality section, p. 32, for other applicable tactics).	1 Inventory and evaluate need for rehabilitation of selected lake trout spawning shoals in Big Rideau, Charleston and Red Horse Lakes. Enhance spawning habitat where necessary. (Co-operative project with Rideau Lakes Fisheries Assessment Unit). 2 Evaluate all proposals for shoreline alteration for the potential impacts on lake trout spawning shoals. 3 Use appropriate legislation when damage occurs to spawning shoals (Lakes and Rivers Improvement Act, Fisheries Act). 4 Participate in municipal planning processes to ensure lake trout concerns are considered in planning decisions.
2 Protect and improve water quality in lakes being managed for lake trout. (See Loss of Environmental Quality section, p. 32, for other applicable tactics).	1 Co-operate with the Ministry of the Environment (M.O.E.) by encouraging "self-help" water quality monitoring programs to continue on Charleston and Big Rideau Lakes. 2 Co-operate with M.O.E. by encouraging landowners to have their septic systems inspected, and if their system does not meet

		current standards, to upgrade them.
	3	Co-operate with M.O.E. and O.M.A.F. by encouraging landowners to reduce or eliminate land practices which result in phosphorus inputs into a lake (fertilizing lawns and fields, shoreline vegetation removal, etc.).
	4	Allow no new lots on Crown land fronting lake trout lakes (as per Eastern Region lake trout management guidelines).
	5	Co-operate with M.O.E. and O.M.A.F. in assessing agricultural drains for their impact on water quality in lake trout lakes.
3 Attempt to reduce competition between lake trout and other species.	1	Utilize undesirable species (eg. burbot) in lake trout lakes by continuing to allow commercial harvest using impounding gear.
	2	Maintain restrictions on the use of alewife and smelt as bait.

PROBLEM/ISSUE: WATER LEVEL FLUCTUATIONS ON CHARLESTON AND BIG RIDEAU LAKES IMPACT UPON SPAWNING SUCCESS OF LAKE TROUT

Strategy	Tactic	
1 Eliminate the impact of water level fluctuations on spawning lake trout. (See also Tactics 2 and 3 under Loss of Environmental Quality: Water Level Fluctuations, p. 35).	1	Continue co-operative efforts with other water users to ensure fisheries concerns are understood and alleviated.
	2	Emphasize desirable water level management guidelines for use by Gananoque Light and Power on Charleston Lake and by Parks Canada on Big Rideau Lake ie.-attain winter levels by Oct.10 -maintain levels all winter -no decline in levels until after March 15.
	3	Ensure that Gananoque Light and Power Co. conforms with the Charleston Lake water management guidelines.
	4	Continue to monitor the water level management regime used on the Gananoque system.

	5 Establish rule curve guidelines for water level management on Big Rideau Lake (Parks Canada).

3.2.2 Warmwater Fisheries

For warmwater species, there is an anticipated demand for 491,660 angler days of recreation and a harvest of 207,780 kg by the year 2000. Since the allowable yield is 583,390 kg, the anticipated demand is less than the estimated yield. The target is set at the projected demand for the year 2000, or 491,660 angler days of recreation, and if a catch standard of 0.5 kg per angler day is applied, the target for total harvest will be 245,830 kg (Table 3). Warmwater fisheries will be managed to protect existing resources while providing an increasing number of angling opportunities. This will be achieved through enhancement of existing warmwater resources and creation of new fisheries through use of underutilized species and waterbodies. Selected management strategies and tactics are summarized as follows:

LOSS OF FISH AND FISHING OPPORTUNITIES - WARMWATER FISHERIES

PROBLEM/ISSUE: ENHANCE/PROTECT THE FISHERIES OF THE ST. LAWRENCE RIVER; MORE MORE THAN HALF OF DISTRICT'S POTENTIAL IS SUPPLIED BY THIS WATERBODY.

Strategy	Tactic
1 Initiate a program for assessing the fish community and angler exploitation on the St. Lawrence River, through the establishment of a St. Lawrence River Fisheries Management Unit (St.L.R.F.M.U.)	1 Continue to monitor the status of the St. Lawrence River population of muskellunge by co-operating with New York State Dept. of Environmental Conservation in their muskellunge population studies (forum:St. Lawrence River Subcommittee to the Lake Ontario Committee of the Great Lakes Fisheries Commission).
	2 Establish a long-term creel survey on the St. Lawrence River.
	3 Establish a long-term index-netting program on St. Lawrence River.
2 Enhance/protect/create key fisheries of the St. Lawrence River (muskellunge,walleye,bass,pike).	1 Investigate feasibility of stocking the St. Lawrence River with muskellunge from native stock.

		2 Increase the size limit of muskellunge to 102 cm (40 in.) to protect breeding stock and allow maintenance of trophy fishery. (St. Lawrence River, Division 11).
		3 Close walleye season March 15 (St. Lawrence River, Division 11) instead of March 31 to eliminate legal angling of spawning walleye.
		4 Monitor feeder creeks (including Sawmill, Jones, Buell's, Johnstown and LaRue Creeks) in the St. Lawrence River for the presence of spawning walleye as part of a possible population expansion from the east or west.
		5 Rehabilitate feeder creeks (see Tactic 4 above) in the St. Lawrence River being used by spawning walleye.
		6 Investigate feasibility of adult walleye transfers to suitable waters (Tactic 4) to establish spawning runs (possibly experimental management project).
		7 Rehabilitate Gananoque River downstream from the dam by substrate placement and flow diversion to enhance spawning success and egg incubation.
		8 Open bass season last Saturday in June (St. Lawrence River, Division 11) instead of third Saturday to eliminate legal angling of spawning bass.
		9 Encourage standardization of regulations for bass and pike on both New York and Ontario sides of the St. Lawrence River.
		10 Enhance fisheries habitat in the St. Lawrence River by construction of artificial reefs.
		11 Do not introduce salmonids to the St. Lawrence River.
3 Assess and preserve areas of		1 See tactics in Loss of Environ-

critical habitat on the St. Lawrence River.	mental Quality section (p.32). 2 Identify import and habitat areas used by muskellunge.

PROBLEM/ISSUE: ENHANCE/PROTECT THE WARMWATER FISHERIES OF INLAND WATERBODIES (REDUCE EXPLOITATION WHERE NECESSARY) - WALLEYE SUFFER FROM OVER-EXPLOITATION AND HABITAT PROBLEMS IN UPPER RIDEAU AND NORTH CROSBY LAKES AND PARTS OF THE RIDEAU RIVER.

Strategy	Tactic
1 Monitor walleye populations and continue to improve habitat conditions and recruitment on these waterbodies; use supplemental stocking to improve these fisheries where practical.	1 Continue to monitor walleye in Upper Rideau Lake; work being done by Rideau Lakes Fisheries Assessment Unit. 2 Stock Upper Rideau Lake with approximately 175,000 walleye fingerlings in 1988 and 1989 on an experimental basis. 3 Continue to improve spawning habitat on Upper Rideau Lake (Narrows Lock, Westport Dam) by addition of rock rubble, removal of obstructions and addition of current deflectors. 4 Rehabilitate walleye in North Crosby Lake by continuing spawning bed rehabilitation projects. 5 Consider C.F.I.P. projects for production of walleye fingerlings to supplement walleye in North Crosby Lake. 6 Rehabilitate and/or establish and/ or maintain walleye populations by habitat management including the addition of rock rubble, removing obstructions and creating water diversions in the following reaches of the Rideau River: Sly's Lock to Edmonds Lock Merrickville to Clowes/Nicholson' Locks Burritt's Rapids to Long Island. (Co-operative project with Carleton Place District). 7 Using C.F.I.P. projects, stock the following two reaches of the Rideau River with walleye

	fingerlings (from pond culture): Sly's Lock to Edmonds Lock Merrickville to Clowes/ Nicholson's Locks.
	8 Assess angler use of walleye by winter creel survey on 3 to 5 year rotation on Burritts Rapids to Long Island reach of the Rideau River. (Co-operative project with Carleton Place District).
2 Attempt to reduce competition between walleye and coarse fish species.	1 Establish commercial impounding gear fishery for bullheads and carp in the Rideau River (2 licences: Edmonds to Merrickville; Burritt's Rapids to Long Island).
	2 Establish archery season for carp in the Rideau River and Kemptville Creek.
3 Provide spawning walleye with protection from anglers.	1 Close walleye season March 15 (except Division 10) instead of March 31 to eliminate legal angling of spawning walleye.
	2 Establish seasonal sanctuary at Burritt's Rapids and Kemptville Creek to eliminate problem of legal angling of spawning walleye.

PROBLEM/ISSUE: LITTLE IS KNOWN ABOUT MUSKELLUNGE POPULATIONS IN RIDEAU RIVER AND THIS TROPHY SPECIES IS KNOWN TO BE SENSITIVE TO VARIOUS STRESSES.

Strategy	Tactic
1 Assess status of muskellunge population in the Rideau River.	1 Collect baseline information about the muskellunge population in the Rideau River by creel survey to determine angler use, exploitation rates and muskellunge abundance and growth.
2 Reduce harvest and protect breeding stock of the Rideau R. muskellunge population.	1 Increase minimum size limit from 71 to 86 cm (28 to 34 in.) as a technique for harvest control and protecting breeding stock.
	2 Reduce catch limit to 1 fish per day from 2 fish per day as a means of reducing harvest.
3 Protect muskellunge habitat in the Rideau River.	1 Identify important habitat areas used by muskellunge in the Rideau

(See Loss of Environmental Quality section, p. 32, for other applicable tactics).

River.

PROBLEM/ISSUE: PROTECT/ASSESS/MAINTAIN HARVEST OF BASS IN INLAND WATERS.

Strategy	Tactic
1 Determine effectiveness of size limits for smallmouth and largemouth bass recruitment on inland lakes.	1 Expand knowledge of impact of size limits on recruitment of bass as a technique for harvest control and protecting breeding stock (assessment unit data, literature search)
	2 Establish a rotating index netting program to determine age-class distribution and growth characteristics on lakes with a size limit for bass (Division 10).
	3 Retain all bass size limits in Division 10 (minimum size of 30 cm or 12 in.) pending results of Tactics 1 and 2.
2 Determine the effectiveness of year-round sanctuaries for protecting spawning bass and providing a "pool" of fish protected from angling.	1 Continue the preliminary work which has been done to assess the effect of sanctuaries on bass production on Newboro Lake.
	2 Consider an experimental management program to remove sanctuaries on certain lakes and perform an index netting program to assess impact of sanctuary removal.
	3 Initiate a public consultation process (series of public meetings) with local users to determine public attitudes toward removing or maintaining sanctuaries.
3 Decrease impact of preseason angling on bass populations.	1 Continue studies initiated in 1985 on impact of preseason bass angling on Newboro Lake.
	2 Increase enforcement effort on lakes susceptible to preseason bass angling.
	3 Increase public awareness of the problem of preseason bass angling by contact with anglers fishing during the months of May and June.

	4 Develop public information and awareness program on the impacts (both biological and social) of preseason bass angling.
4 Establish an assessment program on key bass lakes.	1 Establish a rotating long-term creel survey on these lakes: Newboro(including Clear,Indian, Benson) Lower Beverley,Wolfe and Whitefish. One waterbody every year.
	2 Establish a rotating long-term trap net index netting program on these lakes: Newboro, Lower Beverley, Wolfe and Whitefish. One waterbody every year.
	3 Assess fish community and angler use on Gananoque Lake through creel and index netting surveys.

3.2.3 Illegal Harvest

Illegal harvest of coldwater and warmwater species is a problem in some District waterbodies.

PROBLEM/ISSUE: ILLEGAL HARVEST OF SPORT FISH CONTINUES TO OCCUR.

Strategy	Tactic
1 Reduce illegal harvest of sport fish.	1 Continue to actively enforce existing legislation.
	2 Priorize enforcement effort to provide enforcement presence/ response capability during known periods and in known locations of vulnerability and illegal activity.
	3 Encourage public co-operation in reporting violations through routine Conservation Officer contacts.
	4 Encourage co-operation of tourist establishment owners/ operators through visits by Conservation Officers.
	5 Organize and maintain enforcement information gathering system and capability to analyse and evaluate

information. Implement special enforcement techniques when sufficient information available for a specific law enforcement response.

6 Continue to implement vehicle road check stations at strategic locations to determine fish species harvested, numbers caught and waters being angled.

7 Utilize Deputy Conservation Officers to assist Conservation Officers in routine law enforcement duties.

8 Increase law enforcement "uniform" presence via water-craft patrols during lake trout spawning in the fall.

9 Encourage compliance through education of user groups by Conservation Officers. Implemented by attending angler meetings, preparing and posting information items such as news releases and explanations for intent of regulation.

10 Utilize news media to advertise successful law enforcement effort i.e. convictions and circumstances.

11 Maintain fish sanctuary posting.

12 Increase angler activity checks during spring bullhead fishery to reduce illegal harvest of other species.

13 Utilize capability of enforcement agencies such as O.P.P., Parks Canada wardens, City and Town Police, R.C.M.P.

14 Continue to enforce existing regulations dealing with live bait in order to control accidental introductions of exotics and coarse fish.

3.2.4 Lack of Scientific and Technical Knowledge

Lack of scientific and technical knowledge has been identified as an important problem that impairs effective delivery of fisheries management programs. Specific tactics for dealing with this problem are not identified here, but are located within other strategies and tactics in this draft plan.

PROBLEM/ISSUE: ASSESSMENT OF FISHERIES IN THE DISTRICT IS HAMPERED BY AN INADEQUATE DATABASE.

Strategy	Tactic
1 Increase the information base for District waterbodies and fish populations.	1 See Tactics under other strategies in this plan. 2 Evaluate feasibility of updating District lake, river and stream surveys. 3 Utilize data collected by the Rideau Lakes Fisheries Assessment Unit and St. Lawrence River Fisheries Management Unit.

3.2.5 Loss of Environmental Quality

The destruction or degradation of aquatic habitat in lakes, rivers and streams is an area of major concern in Brockville District. Watershed and shoreline alteration, siltation, nutrient enrichment and water level fluctuations are some of the environmental problems which occur in the District which have a negative impact on fish populations.

PROBLEM/ISSUE: WATERSHED AND SHORELINE ALTERATION ARE CONTRIBUTING TO SUBSTANTIAL FISHERIES HABITAT LOSS.

Strategy	Tactic
1 Educate the public on the impacts of watershed and shoreline alteration.	1 Produce a series of brochures to be handed out to landowners who propose works in the littoral zone to explain potential impacts and show options which minimize affects on the environment. e.g."What you should know about ... docks" "What you should know about ... shoreline vegetation" "What you should know about ...

	aquatic plants" "What you should know about ... dredging"
	2 Publish newspaper and radio ads at a time when most landowners are contemplating work; encourage people to report habitat violations.
	3 Establish slide/tape shows suitable for showing to cottagers associations, municipalities, and contractors in order to provide information on approvals process, and impacts and mitigative measures of shoreline works.
2 Protect fisheries habitat from harmful physical alterations. (See also tactics specific to lake trout habitat in Coldwater Fisheries section).	1 Continue to review all proposals for works in and around the water for potential impact on fisheries habitat.
	2 Enforce regulations under the Fisheries Act where appropriate.
	3 Establish written District policy for review of proposals so that firm guidelines are established and are suitable for public review.
	4 Encourage municipalities to consider fisheries habitat in their official plans by: 1)identifying areas requiring protection; 2)establishing 30 metre setback for cottage construction; 3)providing wetland information to municipalities for zoning protection in official plans.
	5 Continue to review all cottage subdivision plans for their potential impact on fisheries habitat.
3 Increase enforcement as a means of habitat protection.	1 Increase the amount of time spent on habitat enforcement by Conservation Officers.
	2 Conduct regular checks on critical shoreline areas on St. Lawrence River by aerial or ground

	search. 3 Increase Conservation Officer involvement in approvals process by circulating all applications to them, involving them in field inspections and having them sign each letter of approval. 4 Organize a series of meetings with marine contractors to alert them to the legal requirements for work in and around water. 5 Continue to emphasize importance of fisheries habitat violation investigations; upgrade training of enforcement staff in prosecutions. 6 Use video equipment as a surveillance technique for monitoring trends in shoreline development on a 2 or 3 year rotation basis.
4 Improve administrative procedures to make approvals process more efficient and less confusing to the public.	1 Produce a simple one-page handout to explain approvals process. 2 Maintain or improve communication between various administrative agencies (i.e. M.N.R., M.O.E., Parks Canada).
5 Identify important fish habitat in order to facilitate protection from potential shoreline development.	1 Establish an ongoing program to inventory and map the littoral zone of all waterbodies experiencing shoreline development. Visit half the District waterbodies each year.

PROBLEM/ISSUE: NUTRIENT ENRICHMENT ON DISTRICT LAKES IS CAUSING PROLIFERATION OF AQUATIC PLANTS AND ALGAE WHICH CAUSES HABITAT PROBLEMS FOR WALLEYE AND LAKE TROUT.

Strategy	Tactic
1 Identify water quality problems and ensure that their impact is minimized. (See also tactics specific to water quality in lake trout lakes in Coldwater Fisheries section).	1 Co-operate with M.O.E. in performing water quality monitoring in critical waterbodies to identify problem areas. 2 Co-operate with M.O.E. in apprehending violators of existing legislation by passing on complaints received from public and in assisting in

	investigations as appropriate.
	3 Co-operate with M.O.E. and O.M.A.F. educating the public on the detrimental impacts of activities which add nutrients to the system, such as improper septic tank systems, lawn fertilizers, manure handling, cattle access.

PROBLEM/ISSUE: CHEMICAL CONTROL OF AQUATIC PLANTS MAY HARM FISH OR FISH HABITAT.

Strategy	Tactic
1 Protect fish and fish habitat from harmful affects of chemicals used for control of aquatic plants.	1 Co-operate with M.O.E. by reviewing all applications for chemical control of aquatic plants for their potential impact on fish and fish habitat.
	2 Encourage mechanical plant harvesting as a means of aquatic plant control.

PROBLEM/ISSUE: WATER LEVEL FLUCTUATIONS IN DISTRICT WATERBODIES CONTINUE TO IMPACT UPON SPAWNING SUCCESS OF SPORT FISH SPECIES.

Strategy	Tactic
1 Eliminate the impact of water level fluctuations on sport fish species.	1 Continue to work with the agencies regulating water levels on Charleston Lake (Gananoque Light and Power Co.) to resolve conflicts and to ensure consideration of fish and wildlife concerns in water management.
	T2 Consider the construction of spawning channels, etc. to mitigate the impact of water level changes on spawning walleye (ie. at dam sites on Rideau system).
	T3 Establish water level management guidelines for walleye similar to lake trout for spawning areas along the Rideau system (owned by Parks Canada).

3.3 Commercial Food Fisheries

The target for commercial food fishing as originally presented in the Brockville District Land Use Guidelines (1983) was to provide 66,000

kilograms (146,000 pounds) of fish annually by the year 2000. The revised target of 223,300 kg more realistically reflects the estimated potential yield of the harvested waterbodies and is the total District quota. The current annual harvest is less than half the total quota, and management direction for the commercial fishery will be to encourage an increase in harvest up to assigned quotas. Selected management strategies and tactics are summarized as follows:

PROBLEM/ISSUE: UNDERHARVEST OF COMMERCIAL FISH STOCKS OCCURS IN DISTRICT WATERBODIES DUE TO INACTIVE OR BARELY ACTIVE LICENCES AND CONTAMINANT RESTRICTIONS ON TARGET SPECIES.

Strategy	Tactic
1 Attempt to align the commercial harvest of fish with the quota allocation for district waterbodies (quota is currently double the actual harvest).	1 Continue to monitor commercial catches, making adjustments in licences (areas, quotas, transferrals) as appropriate.
	2 Encourage the transferral of inactive licences to more active fishermen.
	3 Continue to investigate feasibility of other commercial fishing techniques, especially electrofishing.
	4 Encourage commercial fishermen to harvest carp and suckers from District waterbodies.
	5 Implement pulse-fishing (see Glossary) in waterbodies not currently fished.
2 Ensure that stocks of commercial fish allocated to the fishery are utilized in accordance with regulation and that methods of harvest and fish handling, disposal and record maintenance are complied with.	1 Conservation Officers to maintain regular contacts with licensees.
	2 Designate one Conservation Officer to receive, inspect and record harvest data and maintain ability to advise licensee of quota status and provide current information on regular basis.
	3 Continue to enforce all regulations pertinent to the commercial fishery in a fair and consistent manner.
	4 Conduct routine investigations

		of gear and fish-handling procedures.
		5 Continue to investigate complaints of illegal activity and implement legal procedures where necessary.
3	Apply information about contaminants to the commercial food fishing industry in order to adjust quotas, licence restrictions, size restrictions, and develop markets for other species.	1 Continue to monitor commercial food fish catches for contaminants and make adjustments in licences as necessary.
		2 Assist commercial fishermen in developing markets for fish species without contaminant restrictions.

PROBLEM/ISSUE: CONFLICTS OCCUR BETWEEN COMMERCIAL FISHERMEN AND SPORT FISH ANGLERS.

	Strategy	Tactic
1	Resolve conflicts between commercial fishermen and sport fish anglers.	1 Arbitrate conflicts as they arise by discussing the conflict with both sides and attempting to provide solutions as appropriate.
		2 Continue to impose restrictions on commercial fishermen as to locations and seasons when they may fish to reduce chances of conflicts with sport anglers.
		3 Continue to educate sport anglers about the commercial fishing industry.

PROBLEM/ISSUE: CONTAMINANTS IN FISH RESTRICT COMMERCIAL UTILIZATION AND ANGLING OPPORTUNITIES.

	Strategy	Tactic
1	Work closely with other agencies to monitor and reduce levels of contaminants in the environment.	1 Continue to co-operate with the Ont. Ministry of the Environment and the Federal Department of Fisheries and Oceans in joint monitoring program for contaminants.
		2 Continue to participate in the Remedial Action Plan. (See Glossary).

3.4 Commercial Bait Fisheries

The target for commercial bait fishing as originally presented in the Brockville District Land Use Guidelines (1983) was to provide 57,500 dozen fish annually from natural sources. This production is in addition to the commercial fishing target. The revised target for commercial baitfish harvest (47,070 dozen) is the projected demand for the year 2000 (current harvest increased by 15%). Management direction will be to maintain a viable baitfish industry and encourage development of new harvest, storage, and propagation techniques. Selected management strategies and tactics are summarized as follows:

PROBLEM/ISSUE: BAITFISH DEMAND IS EXPECTED TO BE 47,000 DOZEN BY YEAR 2000, BUT THERE ARE LOCAL PROBLEMS WITH BAITFISH AVAILABILITY.

	Strategy		Tactic
1	Attempt to manage baitfish licences and harvests to maximize returns while preventing local over-harvesting.	1	Continue to monitor baitfish catches, making adjustments in licences as required.
		2	Continue to cooperate with Leeds and Grenville Baitfish Harvesters Association in the management of local baitfish stocks.
		3	Control the number of new baitfish dealer licences by establishing minimum requirements for baitfish holding facilities.
		4	Encourage the development of better baitfish harvesting and storage techniques by providing technical information to harvesters and dealers.
		5	Emphasize the application of pulse-fishing (See Glossary) techniques.
2	Promote baitfish propagation in ponds.	1	Encourage more individuals to get involved in baitfish propagation and provide technical advice when necessary.
3	Manage baitfish licences to	1	Issue new baitfish licences only

	reduce conflict between fishermen.	as required.
		2 Manage existing licences so that each licence will be area-specific, re-distributing fishermen where necessary.
4	Ensure that the commercial harvest of baitfish is conducted in a manner complying with the requirements set out in regulation.	1 Conservation Officers continue to maintain regular contacts with operators and conduct routine inspections of harvest gear and baitfish holding facilities.
		2 Designate one Conservation Officer to receive and inspect baitfish returns and reports.
		3 Continue to enforce all regulations pertinent to the baitfish industry in a fair and consistent manner.
		4 Monitor the baitfish industry to ensure that the importation/exportation and transfer of live bait is in compliance with existing regulation.
5	Improve harvest estimates of baitfish.	1 Audit annual baitfish returns.
		2 Establish firm reporting standards for annual baitfish returns.

3.5 Provincially Rare and Endangered Fish Species

The target for managing rare and endangered species is to ensure that no native species becomes extinct.

PROBLEM/ISSUE: RARE AND ENDANGERED FISH SPECIES MUST BE PROTECTED FROM EXTINCTION.

	Strategy	Tactic
1	Maintain existing populations of rare, endangered or threatened species.	1 Close the lake sturgeon angling fishery in St. Lawrence River.

3.6 Communicating With The Public

Public understanding and support are critical to the success of

fisheries management programs. In order to gain this support, improved communication and public education programs must be undertaken.

PROBLEM/ISSUE: THERE IS A LACK OF PUBLIC UNDERSTANDING OF M.N.R. FISHERIES MANAGEMENT PROGRAMS.

Strategy	Tactic
1 Promote an increase in understanding of the District's fishing potential	1 Develop a District fishing brochure.
	2 Develop public information programs on each fisheries project as it is implemented.
	3 Improve staff training in delivery of public information.
	4 Continue to provide school talks and encourage schools to request presentations by M.N.R. staff.
	5 Promote use of the Youth Fisheries Education Program and the aquatic portion of Project Wild.
	6 Host workshops/public meetings on local fisheries management problems and solutions.
	7 Promote staff education by holding regular meetings to inform staff and bring them up to date.
	8 Continue to provide information by phone or mail to persons interested in fisheries biology or management.
2 Increase public co-operation and participation in fisheries management programs.	1 Continue to promote the Community Fisheries Involvement Program (C.F.I.P.).
	2 Continue to provide extension services to the public for fisheries management in private ponds.

4.0 IMPLEMENTATION

4.1 General Direction

This fisheries management plan provides the direction for fisheries management in Brockville District to the year 2000. Targets for sport fishing, commercial food fishing and commercial baitfishing have been determined for the planning period, and a series of strategies and tactics have been selected to achieve these targets and the objectives of fisheries management for the District.

Generally, strategies identified in this fisheries management plan will be implemented through:

(i) the preparation of five year implementation schedules;

(ii) programs and projects approved and funded under the Ministry of Natural Resources work planning process;

(iii) input to or participation in other programs carried out by the Ministry of Natural Resources or local Conservation Authorities;

(iv) cooperative efforts with local sportsmen's organizations and private interest groups under the Community Fisheries Involvement Program; and

(v) input to and review of work plans and proposals from municipalities, private landowners and other government agencies.

The plan will be reviewed at five-year intervals and whenever major revisions are necessary. The five-year reviews will occur in 1991 and 1996, and new implementation schedules for the subsequent five-year periods will be prepared at those times. These reviews, and any significant modifications to the plan which may occur will be subject to the same public review process as occurred for the original plan. Approval of the District Manager and Regional Director will be required, and approved changes must be reflected in the District Land Use Guidelines.

The implementation of this fisheries management plan is subject to the requirements of the Environmental Assessment Act.

4.2 Implementation Schedule, 1987-1991

Five-year implementation schedules specify where and when selected strategies will be carried out. The implementation schedule contained in this plan (Appendices II and III) is for the years 1987 to 1991, and details the fisheries management programs to be carried out within this time frame. Annual work plans will be developed from the implementation schedule and will reflect the tactics and priorities established in this fisheries management plan.

Two levels of programs are identified in the implementation schedule:

a) mandatory and high priority programs which may be carried out with existing funding (Map 2, back cover pocket); and

b) projects which would require additional funding (Map 3, back cover pocket).

Routine planning and administrative functions and certain ongoing tactics have not been included in the implementation schedule. It should be realized however that many strategies and tactics, such as enforcing existing legislation and encouraging public participation, have been identified in this plan and are carried out on an ongoing basis.

A number of fisheries management projects such as fish egg and/or fry stocking and habitat rehabilitation have been completed by local sportsmen's organizations under the Community Fisheries Involvement Program (C.F.I.P.). Since it is difficult to predict what C.F.I.P. projects will be undertaken in the future, only some ongoing projects have been identified in this plan. New C.F.I.P. activities initiated under the direction of the implementation schedule will contribute to the achievement of the fisheries management targets for Brockville District.

REFERENCES

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GLOSSARY

ANGLING OPPORTUNITIY

- A measure of supply to indicate the amount of use which a resource can sustain. An angling opportunity may be defined as one fishing trip not exceeding one day and usually averaging four hours in length.

ANGLING QUALITY STANDARD

- The minimum number of fish which could be expected to be caught by an angler during an average fishing trip to guarantee a satisfactory recreational experience. This standard may be expressed in fish per hour or kilograms per angler day.

ARTIFICIAL FISHERY

- A fishery which is maintained entirely through plantings of hatchery reared fish in order to provide angling opportunities.

BAITFISH

- Any member of the minnow family Cyprinidae, except carp and goldfish; the mudminnow family Umbridae; the stickleback family Gasterosteidae; the trout-perch family Percopsidae; the sculpin family Cottidae; the genus Leucichthys of the whitefish family Coregonidae and the darter sub family Etheostomatinae.

COARSE FISH

- Fish species which are not normally sought by recreational anglers. This commonly includes fish from the families Catostomidae (suckers), Ictaluridae (catfish), Gadidae (cods) and Sciaenidae (drums).

COLDWATER FISH COMMUNITY

- Fish populations comprised primarily of the families Salmonidae (trout, salmon and whitefish), Gadidae (burbot) and Clupeidae (herrings).

COMMERCIAL FISH

- Commercial fish refers to those species captured, under authority of a licence, and marketed for human consumption. The most common commercial fish species in the St. Lawrence River includes carp, bullheads, channel catfish, American eels, white sucker and yellow perch.

CREEL SURVEY

- A technique for enumerating and interviewing anglers to obtain information concerning fishing pressure, angler success, fish harvests and biological characteristics of angled fish.

CURRENT FISHERIES YIELD

- The current fisheries yield expresses the yield under existing circumstances given that, due to the presence of some underproducing waters, the total potential fisheries yield is currently not being realized.

EXOTIC FISH SPECIES

- A fish species which is neither native nor has become naturalized or self sustaining in waters within the Province of Ontario.

FISH COMMUNITY

- A combination of different fish species living and interacting together in the same body of water.

INDIGENOUS FISH SPECIES

- A fish species which was not indigenous to a particular waterbody but was introduced and has become established through natural reproduction.

NON-RESIDENT

- An angler whose principle residence is outside the province of Ontario.

OBJECTIVE

- A quantifiable and attainable end which is to be achieved.

PACIFIC SALMON

- Pacific salmon includes coho salmon, chinook salmon, kokanee salmon, pink salmon and any member of the genus Oncorhynchus.

PANFISH

- A group of secondary predator fishes comprised of species such as yellow perch, bluegill, pumpkinseed, rockbass and black crappie.

POTENTIAL YIELD

- The theoretical maximum yield that can be taken annually without exhausting the compensatory reserve of a fish community. The term is analogous to maximum sustainable yield, maximum equilibrium yield, theoretical yield and allowable yield.

PROJECTED YIELD

- The projected yield represents the estimated fisheries yield at the year 2000 and is based upon changes in fish stocks as well as realizing a proportion of the potential yield from waters currently rated as under-producing.

PULSE FISHING

- A harvest technique for commercial food fisheries and bait fisheries whereby a waterbody is exploited in only one of several years on a regular basis.

REMEDIAL ACTION PLAN

- A multiagency plan aimed at the identification, definition and mitigation of a large scale environmental problem.

RESIDENT

- An angler whose principle residence is in Ontario. A local resident angler would be one who can fish an area on a day-use basis, i.e. travel to the area, fish, and return home on the same day.

RULE CURVE

- A schedule of proposed water levels, usually covering a 12 month period, in a waterbody whose water levels are controlled by a dam.

SLOT SIZE LIMIT

- A size limit which permits an angler to keep fish above a maximum size and below a minimum size, but requires the live release of all fish within the slot definition.

SOUTHERN ONTARIO

- The southern Ontario planning region includes the following districts: Algonquin Park, Aylmer, Brockville, Cambridge, Carleton Place, Chatham, Cornwall, Huronia, Lindsay, Maple, Napanee, Niagara, Owen Sound, Parry Sound, Pembroke, Simcoe, Tweed and Wingham.

SPORT FISH

- Top predator fish species which are sought and may legally be taken by angling. In eastern Ontario this usually includes fish from the families Salmonidae (trout and salmon), Percidae (walleye and perch), Esocidae (pike and muskellunge) and Centrarchidae (basses).

STOCK

- A species group or population of fish which maintains and sustains itself over time and may be identified by distinct genotypic characteristics.

STRATEGY

- Planned actions or measures designed to achieve a desired end.

TACTIC

. A specified method designed to achieve one or more strategies.

TARGET

. A quantified end to be achieved or completed by a specific date.

UNDER-PRODUCING WATERS

. Lakes and/or streams which, for some reason, have been withdrawn from fish production or are not producing at their estimated biological potential.

WARMWATER FISH COMMUNITY

. Fish populations comprised primarily of the family Centrarchidae (basses), Esocidae (pike and muskellunge) and Percidae (walleye and yellow perch).

VIEWING OPPORTUNITY

. A measure of recreation supply utilized to describe the number of times a resource or facility can be used in a given time period. A viewing opportunity is considered not to be greater than one day.

APPENDIX I. SUMMARY OF PUBLIC CONSULTATION CARRIED OUT DURING THE BROCKVILLE DISTRICT FISHERIES MANAGEMENT PLANNING EXERCISE.

Public consultation was solicited at two stages in the preparation of the Brockville District Fisheries Management Plan.

A public meeting was held February 4, 1987 in Athens to review background information and optional management strategies. A document summarizing this information was presented at the meeting and the public was requested to provide input verbally or by completing the questionnaire included with the background summary. Attendance at this meeting was approximately 100 people. Prior to the meeting, letters of invitation and copies of the summary document were mailed to Brockville District commercial and bait fish dealers and harvesters, licence issuers, sports and conservation associations, local government offices, regional tourist associations, and interested individuals. The meeting was advertised in local newspapers and on local radio stations.

Responses received during this initial public consultation (Table a) were taken into consideration during the preparation of a draft Brockville District Fisheries Management Plan. Public review of this draft plan was encouraged by distributing a summary of the plan (including a questionnaire/comment sheet), to interested groups and individuals (Table A). A second public meeting to review the draft plan was held in Spring Valley on October 7, 1987 and was attended by approximately 65 people. The public was encouraged to attend this meeting by letters of invitation and advertisements in the local news media.

The final Brockville District Fisheries Management Plan was prepared after reviewing the public responses received throughout the planning exercise. The complete public consultation process is described in detail in M.N.R. (1987c) and a summary of all public comment received is available for viewing at the Brockville District Office.

Table A. Summary Of Written Responses (Verbal Comments Were Not Summarized Quantitatively But Were Considered During Plan Preparation).

RESPONDENT TYPE	BACKGROUND SUMMARY QUESTIONNAIRE	DRAFT PLAN SUMMARY QUESTIONNAIRE	WRITTEN COMMENT
General Public	6	26	2
Resort Operator	2	1	1
Fishing Charter Operator	1	1	0
Cottage Association	1	1	0
Sportsman Club	2	0	2
Bait Harvester Association	1	1	0
Travel Association	0	0	1
Queen's University Biology Station	0	0	1
Conservation Authority	0	0	1
Municipal or Government Agency	1	1	0
TOTAL RESPONSES	14	31	8

Appendix II. FISHERIES MANAGEMENT IMPLEMENTATION SCHEDULE, 1987-1991, BROCKVILLE DISTRICT

Existing Funding Coldwater Sport Fisheries

STRATEGY	TACTIC	LOCATION	YEAR	NEW/ EXISTING	ISSUE/PROBLEM ADDRESSED
Reduce harvest of lake trout to calculated allowable yield.	1. Continue winter closure of fishing in lake trout lakes.	Charleston L. Big Rideau L. Red Horse L.	1987 " "	E	Lake trout over-harvest
	2. Reduce creel limit from 3 to 2 lake trout per day.	Charleston L. Big Rideau L. Red Horse L.	1989 " "	N	"
	3. Ban the possession and use of herring as bait.	lakes of Divisions 9 and 10	1989	N	"
	4. Review of lake trout regulations by provincial committee may provide other harvest control measures such as quotas and season changes.	all lake trout lakes	1988		"
Protect genetic integrity of native lake trout.	1. Evaluate feasibility of stocking Charleston Lake with lake trout yearlings originating from Charleston L. stock. (Co-operative project with Rideau Lakes Fisheries Assessment Unit).	Charleston L.	1987/88	N	"
	2. Continue stocking lake trout only as long as necessary; reduce stocking if/when stocks are rehabilitated.	Charleston L. Big Rideau L. Red Horse L.	1987-1991 " "	E	"
Divert angling pressure away from native lake trout by improving or providing additional coldwater angling opportunities.	1. Provide coldwater fishing opportunities by stocking suitable lakes with F1 splake.	Lower Beverley L. Otter L. Indian L.	1987-1991 " "	E	"

Appendix II. FISHERIES MANAGEMENT IMPLEMENTATION SCHEDULE, 1987-1991, BROCKVILLE DISTRICT

Existing Funding Coldwater Sport Fisheries

STRATEGY	TACTIC	LOCATION	YEAR	NEW/ EXISTING	ISSUE/PROBLEM ADDRESSED
	2. Liberalize season and creel limits for Fl splake.	Lower Beverley L. Otter L. Indian L.	1989 " "	N	Lake trout over-harvest
	3. Continue stocking Red Horse Lake with approximately 5,000 lake trout fingerlings and manage as put-grow and take fishery (annual stocking).	Red Horse L.	1987-1991	E	"
	4. Continue stocking Otter Lake with lake trout and Fl splake fingerlings; manage as put-grow and take fishery for lake trout and Fl splake.	Otter L.	1987-1991	E	"
	5. Rehabilitate Lyn Creek to make it suitable for stocking with brown trout (dependent upon landowner agreements for public access).	Lyn Creek	1987-rehab 1988-stock 1989-stock	E N N	"
	6. Assess other streams for potential for rehabilitation and stocking with brook or brown trout.	Leeders Ck. Buell's Ck. Butler's Ck. LaRue Ck.	1991 " " "	N	"
	7. Continue annual brook trout stocking.	Mud L. Basin L.	1987-1991 "	E	"

Appendix II. FISHERIES MANAGEMENT IMPLEMENTATION SCHEDULE, 1987-1991, BROCKVILLE DISTRICT

Existing Funding Coldwater Sport Fisheries

STRATEGY	TACTIC	LOCATION	YEAR	NEW/ EXISTING	ISSUE/PROBLEM ADDRESSED
	8. Secure public access to Basin Lake by landowner agreement, if angler use warrants continuation of stocking.	Basin L.	1988	N	Lake trout over-harvest
	9. Reclaim (coarse fish removal) brook trout lakes if angler use warrants and coarse fish are over-abundant. Restock with brook trout.	Mud L. Basin L.	1990 "	N	"
Evaluate effectiveness of salmonid stocking program.	1. Assess effectiveness of stocking 3 District lakes with F1 splake by determining splake growth, survival and angler use through creel surveys.	Lower Beverley L. Otter L. Indian L.	1989,1991 1988,1990 1988,1990	N	"
	2. Assess angler use of stocked brook trout lakes by performing winter creel surveys.	Mud L. Basin L.	1988,1989 "	N	"
Manage fishing derbies in accordance with provincial policy.	1. Encourage organizers to terminate lake trout derbies.	all lake trout lakes	1987-1991	E	Harmful impact of some lake trout derbies
	2. Support derbies targetting non-sportfish species.	all lakes	1987-1991	E	"
	3. Evaluate impact of lake trout (and other) derbies on the fishery resource.	all lake trout lakes	1987-1991	N	"

Appendix II. FISHERIES MANAGEMENT IMPLEMENTATION SCHEDULE, 1987-1991, BROCKVILLE DISTRICT

Existing Funding Coldwater Sport Fisheries

STRATEGY	TACTIC	LOCATION	YEAR	NEW/ EXISTING	ISSUE/PROBLEM ADDRESSED
Provide more information to public about lake trout and lake trout management. (See Loss of Environmental Quality section, pp. 68, for other applicable tactics).	1. Perform public consultation/ education program to inform anglers before any new regulations are passed.	all lake trout lakes	1987-1991	E	Public awareness about lake trout is lacking.
	2. Make lake trout harvest information readily available to the public.	all lake trout lakes	1987-1991	E	"
	3. Attempt to foster greater stewardship of resource among lake trout anglers by educating public on the species, its attributes and management problems.	all lake trout lakes	1987-1991	N	"
	4. Produce an information brochure about lake trout management in southeastern Ontario.	Eastern region	1988	N	"
Protect and improve lake trout spawning habitat in lakes being managed for lake trout. (See Loss of Environmental Quality section, pp. 68, for other applicable tactics.	1. Evaluate all proposals for shoreline alteration for the potential impacts on lake trout spawning shoals.	all lake trout lakes	1987-1991	E	Lake trout habitat deterioration
	2. Use appropriate legislation when damage occurs to spawning shoals (Lakes and Rivers Improvement Act, Fisheries Act).	all lake trout lakes	1987-1991	E	"

Appendix II. FISHERIES MANAGEMENT IMPLEMENTATION SCHEDULE, 1987-1991, BROCKVILLE DISTRICT

Existing Funding Coldwater Sport Fisheries

STRATEGY	TACTIC	LOCATION	YEAR	NEW/ EXISTING	ISSUE/PROBLEM ADDRESSED
	3. Participate in municipal planning processes to ensure lake trout concerns are considered in planning decisions.	all lake trout lakes	1987-1991	E	Lake trout habitat deterioration
Protect and improve water quality in lakes being managed for lake trout. (See Loss of Environmental Quality section, pp. 68, for other applicable tactics).	1. Co-operate with M.O.E. by encouraging "self-help" water quality monitoring programs to continue.	Charleston L. Big Rideau L.	1987-1991 "	E	"
	2. Co-operate with M.O.E. by encouraging landowners to have their septic systems inspected, and if their system does not meet current standards, to upgrade them.	all lake trout lakes	1987-1991	E	"
	3. Co-operate with M.O.E. and O.M.A.F. by encouraging landowners to reduce or eliminate land practices which result in phosphorus inputs into a lake (fertilizing laws and fields, shoreline vegetation removal,etc.)	all lake trout lakes	1987-1991		"
	4. Allow no new lots on Crown land fronting lake trout lakes. (as per Eastern Region lake trout management guidelines).	all lake trout lakes	1987-1991	E	"

Appendix II. FISHERIES MANAGEMENT IMPLEMENTATION SCHEDULE, 1987-1991, BROCKVILLE DISTRICT

Existing Funding Coldwater Sport Fisheries

STRATEGY	TACTIC	LOCATION	YEAR	NEW/ EXISTING	ISSUE/PROBLEM ADDRESSED
	5. Co-operate with M.O.E. and O.M.A.F. in assessing agricultural drains for their impact on water quality in lake trout lakes.	all lake trout lakes	1987-1991	E	Lake trout habitat deterioration
Attempt to reduce competition between lake trout and other species.	1. Utilize undesirable species (eg. burbot) in lake trout lakes by continuing to allow commercial harvest using impounding gear.	all lake trout lakes	1987-1991	E	"
	2. Maintain restrictions on the use of alewife and smelt as bait.	all lake trout lakes	1987-1991	E	"
Eliminate the impact of water level fluctuations on spawning lake trout. (See also Tactics 2 and 3 under Loss of Environmental Quality: Water Level Fluctuations, p. 72).	1. Continue co-operative efforts with other water users to ensure fisheries concerns are understood and alleviated.	Charleston L. Big Rideau L.	1987-1991 "	E	Impaired lake trout spawning
	2. Emphasize desirable water level management guidelines for use by Gananoque Light and Power Co. on Charleston Lake and by Parks Canada on Big Rideau Lake, i.e. -attain winter levels by Oct.10 -maintain levels all winter -no decline in levels until after March 15.	Charleston L. Big Rideau L.	1987-1991 "	E	"

Appendix II. FISHERIES MANAGEMENT IMPLEMENTATION SCHEDULE, 1987-1991, BROCKVILLE DISTRICT

Existing Funding Coldwater Sport Fisheries

STRATEGY	TACTIC	LOCATION	YEAR	NEW/ EXISTING	ISSUE/PROBLEM ADDRESSED
	3. Ensure that Gananoque Light and Power Co. conforms with the Charleston Lake water management guidelines.	Charleston L.	1987-1991	E	Impaired lake trout spawning
	4. Continue to monitor the water level management regime used on the Gananoque system.	Gananoque R. system	1987-1991	E	"
	5. Establish rule curve guidelines for water level management on Big Rideau Lake (Parks Canada).	Big Rideau L.	1987-1991	N	"

Appendix II. FISHERIES MANAGEMENT IMPLEMENTATION SCHEDULE, 1987-1991, BROCKVILLE DISTRICT

Existing Funding Warmwater Sport Fisheries

STRATEGY	TACTIC	LOCATION	YEAR	NEW/ EXISTING	ISSUE/PROBLEM ADDRESSED
Initiate a program for assessing community and angler exploitation on the St. Lawrence River, through the establishment of a St. Lawrence River Fisheries Management Unit (St.L.R.F.M.U.)	1.Establish a long-term creel survey on the St. Lawrence River.	St. Lawrence R.	1987 1988	N	Protect/ enhance St. Lawrence R. fisheries
	2.Establish a long-term index-netting program on St. Lawrence River.	St. Lawrence R.	1987	N	"
Enhance/protect/create key fisheries of the St. Lawrence River (muskellunge,walleye,bass,pike).	1.Investigate feasibility of stocking the St. Lawrence River with muskellunge from native stock.	St. Lawrence R.	1988	N	"
	2.Increase the size limit of muskellunge to 102 cm (40 in.) to protect breeding stock and allow maintenance of trophy fishery.	St. Lawrence R. Division 11	1987	E	"
	3.Close walleye season March 15 instead of March 31 to eliminate legal angling of spawning walleye.	St. Lawrence R. Division 11	1990	N	"
	4.Investigate feasibility of adult walleye transfers to suitable waters to establish spawning runs (possibly experimental management project).	Sawmill Ck. Jones Ck. Buell's Ck. Johnstown Ck. LaRue Ck.	1988-1991 " " " "	N	"

Appendix II. FISHERIES MANAGEMENT IMPLEMENTATION SCHEDULE, 1987-1991, BROCKVILLE DISTRICT

Existing Funding Warmwater Sport Fisheries

STRATEGY	TACTIC	LOCATION	YEAR	NEW/ EXISTING	ISSUE/PROBLEM ADDRESSED
	5. Rehabilitate Gananoque River downstream from the dam by substrate placement and flow diversion to enhance spawning success and egg incubation.	Gananoque R.	1988	N	Protect/ enhance St. Lawrence R. fisheries
	6. Open bass season last Saturday in June instead of third Saturday to eliminate problem of legal angling of spawning bass.	St. Lawrence R. Division 11	1990	N	"
	7. Encourage standardization of regulations for bass and pike on both New York and Ontario sides of the St. Lawrence River.	St. Lawrence R.	1988-1990	N	"
	8. Do not introduce salmonids to the St. Lawrence R.	St. Lawrence R.	1987-1991	E	"
Assess and preserve areas of critical habitat on the St. Lawrence River.	1. See tactics in Loss of Environmental Quality section. (pp. 68).				
	2. Identify important habitat areas used by muskellunge.	St. Lawrence R.	1987-1991	N	"
Monitor walleye populations and continue to improve habitat conditions and recruitment on these waterbodies; use supplemental stocking to improve these fisheries where practical.	1. Continue to monitor walleye in Upper Rideau Lake; work being done by Rideau Lakes Fisheries Assessment Unit.	Upper Rideau L.	1987-1990	E	Protect/enhance inland fisheries

Appendix II. FISHERIES MANAGEMENT IMPLEMENTATION SCHEDULE, 1987-1991, BROCKVILLE DISTRICT

Existing Funding Warmwater Sport Fisheries

STRATEGY	TACTIC	LOCATION	YEAR	NEW/ EXISTING	ISSUE/PROBLEM ADDRESSED
	2. Stock Upper Rideau Lake with approximately 175,000 walleye fingerlings in 1988 and 1989.	Upper Rideau L.	1988 1989	N	Protect/enhance inland fisheries
	3. Continue to improve spawning habitat on Upper Rideau Lake (Narrows Lock, Westport Dam) by addition of rock rubble, removal of obstructions and addition of current deflectors.	Upper Rideau L.	1988	N	"
	4. Consider C.F.I.P. projects for production of walleye fingerlings to supplement walleye in North Crosby Lake.	North Crosby L.	1988	N	"
	5.Rehabilitate and/or establish and/ or maintain walleye populations by habitat management including the addition of rock rubble, removing obstructions and creating water diversions in the following reaches of the Rideau River: Sly's Lock to Edmonds Lock Merrickville to Clowes/Nicholson' Locks Burritt's Rapids to Long Island. (Co-operative project with Carleton Place District).	Rideau R.	1990,1991	N	"

Appendix II. FISHERIES MANAGEMENT IMPLEMENTATION SCHEDULE, 1987-1991, BROCKVILLE DISTRICT

Existing Funding Warmwater Sport Fisheries

STRATEGY	TACTIC	LOCATION	YEAR	NEW/ EXISTING	ISSUE/PROBLEM ADDRESSED
	6.Using C.F.I.P. projects, stock the following two reaches at the Rideau River with walleye fingerlings (from pond culture): Sly's Lock to Edmonds Lock Merrickville to Clowes/ Nicholson's Locks.	Rideau R.	1987-1991	E	Protect/enhance inland fisheries
	7.Assess angler use of walleye by winter creel survey on 3 to 5 year rotation on Burritts Rapids to Long Island reach of the Rideau River.	Rideau R.	1990	N	"
Attempt to reduce competition between walleye and coarse fish species.	1.Establish commercial impounding gear fishery for bullheads and carp in the Rideau River (2 licences: Edmonds to Merrickville; Burritt's Rapids to Long Island).	Rideau R.	1987-1991	N	"
	2.Establish archery season for carp in the Rideau River and Kemptville Creek.	Rideau R. Kemptville Ck.	1988	N	"
Provide spawning walleye with protection from anglers.	1.Close walleye season March 15 (except Division 10) instead of March 31 to eliminate legal angling of spawning walleye.	Division 9/ Rideau R.	1990	N	"

Appendix II. FISHERIES MANAGEMENT IMPLEMENTATION SCHEDULE, 1987-1991, BROCKVILLE DISTRICT

Existing Funding Warmwater Sport Fisheries

STRATEGY	TACTIC	LOCATION	YEAR	NEW/ EXISTING	ISSUE/PROBLEM ADDRESSED
	2. Establish seasonal sanctuary at Burritt's Rapids and Kemptville Creek to eliminate legal angling of spawning walleye.	Division 9/ Rideau R.	1989	N	Protect/enhance inland fisheries
Assess status of muskellunge population in the Rideau River.	1. Collect baseline information about the muskellunge population in the Rideau River by creel survey to determine angler use, exploitation rates and muskellunge abundance and growth.	Rideau R.	1991	N	Assess and protect Rideau R. muskellunge fisheries.
Reduce harvest and protect breeding stock of the Rideau River muskellunge population.	1. Increase minimum size limit from 71 to 86 cm (28 to 34 in.).	Rideau R.	1987	N	"
	2. Reduce catch limit to 1 fish per day from 2 fish per day as a means of reducing harvest.	Rideau R.	1987	N	"
Protect muskellunge habitat in the Rideau River. (See Loss of Environmental Quality section, pp. 68, for other applicable tactics).	1. Identify important habitat areas used by muskellunge in the Rideau River.	Rideau R.	1991	N	"

Appendix II. FISHERIES MANAGEMENT IMPLEMENTATION SCHEDULE, 1987-1991, BROCKVILLE DISTRICT

Existing Funding Warmwater Sport Fisheries

STRATEGY	TACTIC	LOCATION	YEAR	NEW/ EXISTING	ISSUE/PROBLEM ADDRESSED
Determine effectiveness of size limits for smallmouth and largemouth bass recruitment on inland lakes.	1. Expand knowledge of impact of size limits on recruitment of bass as a technique for harvest control and protecting breeding stock (assessment unit data, literature search)	all bass lakes	1987-1991	N	Assess and protect inland bass fisheries.
	2. Retain all bass size limits in Division 10 (minimum size of 30 cm or 12 in.) pending results of tactic 1.	Divison 10	1987-1991	E	"
Determine the effectiveness of year-round sanctuaries for protecting spawning bass and providing a "pool" of fish protected from angling.	1. Continue the preliminary work which has been done to assess the effect of sanctuaries on bass production on Newboro Lake.	Newboro L.	1987-1991	E	"
	2. Consider an experimental management program to remove sanctuaries on certain lakes and perform an index netting program to assess impact of sanctuary removal.	lakes of Leeds County	1988	N	"
	3. Initiate a public consultation process (series of public meetings) with local users to determine public attitudes toward removing or maintaining sanctuaries.	lakes of Leeds County	1987-1991	N	"

Appendix II. FISHERIES MANAGEMENT IMPLEMENTATION SCHEDULE, 1987-1991, BROCKVILLE DISTRICT

Existing Funding Warmwater Sport Fisheries

STRATEGY	TACTIC	LOCATION	YEAR	NEW/ EXISTING	ISSUE/PROBLEM ADDRESSED
Decrease impact of preseason angling on bass populations.	1. Continue studies initiated in 1985 on impact of preseason bass angling on Newboro Lake.	Newboro L.	1987-1991	E	Assess and protect inland bass fisheries
	2. Increase enforcement effort on lakes susceptible to preseason bass angling.	lakes of Leeds County	1987-1991	N	"
	3. Increase public awareness of the problem of preseason bass angling by contact with anglers fishing during the months of May and June.	lakes of Leeds County	1987-1991	N	"
	4. Develop public information and awareness program on the impacts (both biological and social) of preseason bass angling.	lakes of Leeds County	1987-1991	N	"

Appendix II. FISHERIES MANAGEMENT IMPLEMENTATION SCHEDULE, 1987-1991, BROCKVILLE DISTRICT

Existing Funding Sport Fisheries - Illegal Harvest

STRATEGY	TACTIC	LOCATION	YEAR	NEW/ EXISTING	ISSUE/PROBLEM ADDRESSED
Reduce illegal harvest of sport fish.	1. Continue to actively enforce existing legislation.	all waterbodies	1987-1991	E	Illegal harvest of sport fish
	2. Priorize enforcement effort to provide enforcement presence/ response capability during known periods and in known locations of vulnerability and illegal activity.	all waterbodies	1988-1991	E	"
	3. Encourage public co-operation in reporting violations through routine Conservation Officer contacts.	all waterbodies	1987-1991	E	"
	4. Encourage co-operation of tourist establishment owners/ operators through visits by Conservation Officers.	all waterbodies	1987-1991	E	"
	5. Organize and maintain enforcement information gathering system and capability to analyse and evaluate information. Implement special enforcement techniques when sufficient information available for a specific law enforcement response.	all waterbodies	1987-1991	E	"

Appendix II. FISHERIES MANAGEMENT IMPLEMENTATION SCHEDULE, 1987-1991, BROCKVILLE DISTRICT

Existing Funding Sport Fisheries - Illegal Harvest

STRATEGY	TACTIC	LOCATION	YEAR	NEW/ EXISTING	ISSUE/PROBLEM ADDRESSED
	6. Continue to implement vehicle road check stations at strategic locations to determine fish species harvested, number caught and waters being angled.	all waterbodies	1987-1991	E	Illegal harvest of sport fish
	7. Utilize Deputy Conservation Officers to assist Conservation Officers in routine law enforcement duties.	all waterbodies	1987-1991	E	"
	8. Increase law enforcement "uniform" presence via water-craft patrols during lake trout spawning in the fall.	all waterbodies	1987-1991	E	"
	9. Encourage compliance through education of user groups by Conservation Officers. Implemented by attending angler meetings, preparing and posting information items such as news releases and explanations for intent of regulation.	all waterbodies	1987-1991	E	"

Appendix II. FISHERIES MANAGEMENT IMPLEMENTATION SCHEDULE, 1987-1991, BROCKVILLE DISTRICT

Existing Funding Sport Fisheries - Illegal Harvest

STRATEGY	TACTIC	LOCATION	YEAR	NEW/ EXISTING	ISSUE/PROBLEM ADDRESSED
	10. Utilize news media to advertise successful law enforcement effort i.e. convictions and circumstances.	all waterbodies	1987-1991	E	Illegal harvest of sport fish
	11. Maintain fish sanctuary posting.	all waterbodies	1987-1991	E	"
	12. Increase angler activity checks during spring bullhead fishery to reduce illegal harvest of other species.	all waterbodies	1988-1991	E	"
	13. Utilize capability of enforcement agencies such as O.P.P., Parks Canada wardens, City and Town Police, R.C.M.P.	all waterbodies	1987-1991	E	"
	14. Continue to enforce existing regulations dealing with live bait in order to control accidental introductions of exotics and coarse fish.	all waterbodies	1987-1991	E	"

Appendix II. FISHERIES MANAGEMENT IMPLEMENTATION SCHEDULE, 1987-1991, BROCKVILLE DISTRICT

Existing Funding Sport Fisheries - Lack of Scientific and Technical Knowledge

STRATEGY	TACTIC	LOCATION	YEAR	NEW/ EXISTING	ISSUE/PROBLEM ADDRESSED
Increase the information base for District waterbodies and fish populations.	1.See tactics under other strategies in this Plan.	all waterbodies			Assessment of District fisheries is hampered by an inadequate database.
	2.Evaluate feasibility of updating District lake, river and stream surveys.	all waterbodies	1988	N	
	3.Utilize data collected by the Rideau Lakes Fisheries Assessment Unit and St. Lawrence River Fisheries Management Unit.		1987-1991	E	"

Appendix II. FISHERIES MANAGEMENT IMPLEMENTATION SCHEDULE, 1987-1991, BROCKVILLE DISTRICT

Existing Funding Sport Fisheries - Loss of Environmental Quality

STRATEGY	TACTIC	LOCATION	YEAR	NEW/ EXISTING	ISSUE/PROBLEM ADDRESSED
Educate the public on the impacts of watershed and shoreline alteration.	1.Produce a series of brochures to be handed out to landowners who propose works in the littoral zone to explain potential impacts and show options which minimize affects on the environment. e.g."What you should know about ... docks" "What you should know about ... shoreline vegetation" "What you should know about... aquatic plants" "What you should know about ... dredging"	all waterbodies	1988	N	Fisheries habitat loss due to watershed and shoreline alteration.
	2.Publish newspaper and radio ads at a time when most landowners are contemplating work; encourage people to report habitat violations.	all waterbodies	1988-1991	N	"
	3.Establish slide/tape shows suitable for showing to cottagers associations, municipalities and contractors in order to provide information on approvals process, and impacts and mitigative measures of shoreline works.	all waterbodies	1988-1991	N	"

Appendix II. FISHERIES MANAGEMENT IMPLEMENTATION SCHEDULE, 1987-1991, BROCKVILLE DISTRICT

Existing Funding Sport Fisheries - Loss of Environmental Quality

STRATEGY	TACTIC	LOCATION	YEAR	NEW/ EXISTING	ISSUE/PROBLEM ADDRESSED
Protect fisheries habitat from harmful physical alterations. (See also tactics specific to lake trout habitat in Coldwater Sport Fisheries section).	1.Continue to review all proposals for works in and around the water for the potential impact on fisheries habitat.	all waterbodies	1987-1991	E	Fisheries habitat loss due to watershed and shoreline alteration
	2.Enforce regulations under the Fisheries Act where appropriate.	all waterbodies	1987-1991	E	"
	3.Establish written District policy for review of proposals so that firm guidelines are established and are suitable for public review.	all waterbodies	1987-1991	E	"
	4.Encourage municipalities to consider fisheries habitat in their official plans by: 1)identifying areas requiring protection; 2)establishing 30 metre setback for cottage construction; 3)providing wetland information to municipalities for zoning protection in official plans.	all waterbodies	1987-1991	E	"
	5.Continue to review all cottage subdivision plans for their potential impact on fisheries habitat.	all waterbodies	1987-1991	E	"

Appendix II. FISHERIES MANAGEMENT IMPLEMENTATION SCHEDULE, 1987-1991, BROCKVILLE DISTRICT

Existing Funding Sport Fisheries - Loss of Environmental Quality

STRATEGY	TACTIC	LOCATION	YEAR	NEW/ EXISTING	ISSUE/PROBLEM ADDRESSED
Increase enforcement as a means of habitat protection.	1.Increase the amount of time spent on habitat enforcement by Conservation Officers.	all waterbodies	1988	E	Fisheries habitat loss due to watershed and shoreline alteration.
	2.Conduct regular checks on critical shoreline areas on St. Lawrence River by aerial or ground search.	St. Lawrence River	1988	E	"
	3.Increase Conservation Officer involvement in approvals process by circulating all applications to them, involving them in field inspections and having them sign each letter of approval.	all waterbodies	1987-1991	E	"
	4.Organize a series of meetings with marine contractors to alert them to the legal requirements for work in and around water.	all waterbodies	1987-1991	N	"
	5.Continue to emphasize importance of fisheries habitat violation investigations; upgrade training of enforcement staff in prosecutions.	all waterbodies	1987-1991	E	"
	6.Use video equipment as a surveillance technique for monitoring trends in shoreline development on a 2 or 3 year rotation basis.	all waterbodies	1987-1991	N	"

Appendix II. FISHERIES MANAGEMENT IMPLEMENTATION SCHEDULE, 1987-1991, BROCKVILLE DISTRICT

Existing Funding Sport Fisheries - Loss of Environmental Quality

STRATEGY	TACTIC	LOCATION	YEAR	NEW/ EXISTING	ISSUE/PROBLEM ADDRESSED
Improve administrative procedures to make approvals process more efficient and less confusing to the public.	1.Produce simple one-page handout to explain approvals process.	all waterbodies	1988	N	Fisheries habitat loss due to watershed and shoreline alteration.
	2.Maintain or improve communication between various administrative agencies (i.e. M.N.R., M.O.E., Parks Canada).	all waterbodies	1987-1991	N	"
Identify important fish habitat in order to facilitate protection from potential shoreline development.	1.Establish an ongoing program to inventory and map the littoral zone of all waterbodies experiencing shoreline development. Visit half the District waterbodies each year.	all waterbodies	1987-1991	N	"
Identify water quality problems and ensure that their impact is minimized. (See also tactics specific to water quality in lake trout lakes in Coldwater Sport Fisheries section).	1.Co-operate with M.O.E. in performing water quality monitoring in critical waterbodies to identify problem areas.	all waterbodies	1987-1991	E	Fisheries habitat loss due to nutrient enrichment.
	2.Co-operate with M.O.E. in apprehending violators of existing legislation by passing on complaints received from public and in assisting in investigations as appropriate.	all waterbodies	1987-1991	E	"

Appendix II. FISHERIES MANAGEMENT IMPLEMENTATION SCHEDULE, 1987-1991, BROCKVILLE DISTRICT

Existing Funding Sport Fisheries - Loss of Environmental Quality

STRATEGY	TACTIC	LOCATION	YEAR	NEW/ EXISTING	ISSUE/PROBLEM ADDRESSED
	3.Co-operate with M.O.E. in educating the public on the detrimental impacts of activities which add nutrients to the system, such as improper septic tank systems, lawn fertilizers, manure handling, cattle access.	all waterbodies	1987-1991	E	Fisheries habitat loss due to nutrient enrichment
Protect fish and fish habitat from harmful affects of chemicals used for control of aquatic plants.	1.Co-operate with M.O.E. by reviewing all applications for chemical control of aquatic plants for their potential impact on fish and fish habitat.	all waterbodies	1987-1991	E	Fisheries habitat loss due to chemical weed control.
	2.Encourage mechanical plant harvesting as a means of aquatic plant control.	all waterbodies	1987-1991	E	"
Eliminate the impact of water level fluctuations on sport fish species.	1.Continue to work with the agencies regulating water levels on Charleston Lake (Gananoque Light and Power Co.) to resolve conflicts and to ensure consideration of fish and wildlife concerns in water management.	all waterbodies	1987-1991	E	Fisheries habitat loss due to water level fluctuations.
	2.Consider the construction of spawning channels, etc. to mitigate the impact of water level changes on spawning walleye (ie. at dam sites on Rideau system).	Rideau R.	1987-1991	N	"

Appendix II. FISHERIES MANAGEMENT IMPLEMENTATION SCHEDULE, 1987-1991, BROCKVILLE DISTRICT

Existing Funding Sport Fisheries - Loss of Environmental Quality

STRATEGY	TACTIC	LOCATION	YEAR	NEW/ EXISTING	ISSUE/PROBLEM ADDRESSED
	3.Establish water level management guidelines for walleye similar to lake trout for spawning areas along the Rideau system (owned by Parks Canada).	Rideau system	1987-1991	N	Fisheries habitat loss due to water level fluctuations

Appendix II. FISHERIES MANAGEMENT IMPLEMENTATION SCHEDULE, 1987-1991, BROCKVILLE DISTRICT

Existing Funding Commercial Food Fisheries

STRATEGY	TACTIC	LOCATION	YEAR	NEW/ EXISTING	ISSUE/PROBLEM ADDRESSED
Attempt to align the commercial harvest of fish with the quota allocation for district waterbodies (quota is currently double the actual harvest).	1. Continue to monitor commercial catches, making adjustments in licences (areas, quotas, transferrals) as appropriate.	all waterbodies	1987-1991	E	Under-harvest of commercial fish species.
	2. Encourage the transferral of inactive licences to more active fishermen.	all waterbodies	1987-1991	E	"
	3. Continue to investigate feasibility of other commercial fishing techniques, especially electrofishing.	all waterbodies	1987-1991	E	"
	4. Encourage commercial fishermen to harvest carp and suckers from District waterbodies.	all waterbodies	1987-1991	E	"
	5. Implement pulse-fishing (see Glossary) in waterbodies not currently fished.	all waterbodies	1987-1991	N	"
Ensure that stocks of commercial fish allocated to the fishery are utilized in accordance with regulation and that methods of harvest and fish handling, disposal and record maintenance are complied with.	1. Conservation Officers to maintain regular contacts with licensees.	all waterbodies	1987-1991	E	"
	2. Designate one Conservation Officer to receive, inspect and record harvest data and maintain ability to advise licensee of quota status and provide current information on regular basis.	all waterbodies	1987-1991	E	"

Appendix II. FISHERIES MANAGEMENT IMPLEMENTATION SCHEDULE, 1987-1991, BROCKVILLE DISTRICT

Existing Funding Commercial Food Fisheries

STRATEGY	TACTIC	LOCATION	YEAR	NEW/ EXISTING	ISSUE/PROBLEM ADDRESSED
	3. Continue to enforce all regulations pertinent to the commercial fishery in a fair and consistent manner.	all waterbodies	1987-1991	E	Under-harvest of commercial fish fish species
	4. Conduct routine investigations of gear and fish-handling procedures.	all waterbodies	1987-1991	E	"
	5. Continue to investigate complaints of illegal activity and implement legal procedures where necessary.	all waterbodies	1987-1991	E	"
Apply information about contaminants to the commercial food fishing industry in order to adjust quotas, licence restrictions, size restrictions, and develop markets for other species.	1. Continue to monitor commercial food fish catches for contaminants and make adjustments in licences as necessary.	all waterbodies	1987-1991	E	"
	2. Assist commercial fishermen in developing markets for fish species without contaminant restrictions.	all waterbodies	1987-1991	E	"
Resolve conflicts between commercial fishermen and sport fish anglers.	1. Arbitrate conflicts as they arise by discussing the conflict with both sides and attempting to provide solutions as appropriate.	all waterbodies	1987-1991	E	Conflicts between commercial and sport fishermen.

Appendix II. FISHERIES MANAGEMENT IMPLEMENTATION SCHEDULE, 1987-1991, BROCKVILLE DISTRICT

Existing Funding Commercial Food Fisheries

STRATEGY	TACTIC	LOCATION	YEAR	NEW/ EXISTING	ISSUE/PROBLEM ADDRESSED
	2. Continue to impose restrictions on commercial fishermen as to locations and seasons when they may fish to reduce chances of conflicts with sport anglers.	all waterbodies	1987-1991	E	Conflicts between commercial and sport fishermen.
	3. Continue to educate sport anglers about the commercial fishing industry.	all waterbodies	1987-1991	E	"
Work closely with other agencies to monitor and reduce levels of contaminants in the environment.	1. Continue to co-operate with the Ont. Ministry of the Environment and the Federal Dept. of Fisheries and Oceans in joint monitoring program for contaminants.	all waterbodies	1987-1991	E	Contaminants in fish restrict use.
	2. Continue to participate in the Remedial Action Plan (see Glossary).	St. Lawrence River	1987-1991	E	"

Appendix II. FISHERIES MANAGEMENT IMPLEMENTATION SCHEDULE, 1987-1991, BROCKVILLE DISTRICT

Existing Funding Commercial Bait Fisheries

STRATEGY	TACTIC	LOCATION	YEAR	NEW/ EXISTING	ISSUE/PROBLEM ADDRESSED
Attempt to manage baitfish licences and harvests to maximize returns while preventing local over-harvesting.	1. Continue to monitor baitfish catches, making adjustments in licences as required.	all waterbodies	1987-1991	E	Local baitfish availability is limited.
	2. Continue to cooperate with Leeds and Grenville Baitfish Harvesters Association in the management of local baitfish stocks.	all waterbodies	1987-1991	E	"
	3. Control the number of new baitfish dealer licences by establishing minimum requirements for baitfish holding facilities.	all waterbodies	1987-1991	E	"
	4. Encourage the development of better baitfish harvesting and storage techniques by providing technical information to harvesters and dealers.	all waterbodies	1987-1991	E	"
	5. Emphasize the application of pulse-fishing (see Glossary) techniques.	all waterbodies	1987-1991	E	"

Appendix II. FISHERIES MANAGEMENT IMPLEMENTATION SCHEDULE, 1987-1991, BROCKVILLE DISTRICT

Existing Funding Commercial Bait Fisheries

STRATEGY	TACTIC	LOCATION	YEAR	NEW/ EXISTING	ISSUE/PROBLEM ADDRESSED
Promote baitfish propagation in ponds.	1. Encourage more individuals to get involved in baitfish propagation and provide technical advice when necessary.	private ponds	1987-1991	E	Local baitfish availability is limited
Manage baitfish licences to reduce conflict between fishermen.	1. Issue new baitfish licences only as required.	all waterbodies	1987-1991	E	"
	2. Manage existing licences so that each licence will be area-specific, re-distributing fishermen where necessary.	all waterbodies	1987-1991	E	"
Ensure that the commercial harvest of baitfish is conducted in a manner complying with the requirements set out in regulation.	1. Conservation Officers continue to maintain regular contacts with operators and conduct routine inspections of harvest gear and baitfish holding facilities.	all waterbodies	1987-1991	E	"
	2. Designate one Conservation Officer to receive and inspect baitfish returns and reports.	all waterbodies	1987-1991	E	"
	3. Continue to enforce all regulations pertinent to the baitfish industry in a fair and consistent manner.	all waterbodies	1987-1991	E	"

Appendix II. FISHERIES MANAGEMENT IMPLEMENTATION SCHEDULE, 1987-1991, BROCKVILLE DISTRICT

Existing Funding Commercial Bait Fisheries

STRATEGY	TACTIC	LOCATION	YEAR	NEW/ EXISTING	ISSUE/PROBLEM ADDRESSED
	4. Monitor the baitfish industry to ensure that the importation/ exportation and transfer of live bait is in compliance with existing regulation.	all waterbodies	1987-1991	E	Local baitfish availability is limited.
Improve harvest estimates of baitfish.	1. Audit annual baitfish returns.	all waterbodies	1987-1991	E	"
	2. Establish firm reporting standards for annual baitfish returns.	all waterbodies	1987-1991	N	"

Appendix II. FISHERIES MANAGEMENT IMPLEMENTATION SCHEDULE, 1987-1991, BROCKVILLE DISTRICT

Existing Funding Provincially Rare and Endangered Fish Species

STRATEGY	TACTIC	LOCATION	YEAR	NEW/ EXISTING	ISSUE/PROBLEM ADDRESSED
Maintain existing populations of rare, endangered or threatened species.	1. Close lake sturgeon angling fishery in St. Lawrence River.	St. Lawrence River	1989	N	Prevent extinction.

Appendix II. FISHERIES MANAGEMENT IMPLEMENTATION SCHEDULE, 1987-1991, BROCKVILLE DISTRICT

Existing Funding Communicating with the Public

STRATEGY	TACTIC	LOCATION	YEAR	NEW/ EXISTING	ISSUE/PROBLEM ADDRESSED
Promote an increase in understanding of the District's fishing potential	1.Develop a District fishing brochure.	all waterbodies	1988	N	Increase public awareness of fisheries management programs.
	2.Develop public information programs on each fisheries project as it is implemented.	all waterbodies	1987-1991	N	"
	3.Improve staff training in delivery of public information.	all waterbodies	1987-1991	N	"
	4.Continue to provide school talks and encourage schools to request presentations by M.N.R. staff.	all waterbodies	1987-1991	E	"
	5.Promote use of Youth Fisheries Education Program and the aquatic portion of Project Wild.	all waterbodies	1987-1991	N	"
	6.Host workshops/public meetings on local fisheries management problems and solutions.	all waterbodies	1987-1991	N	"
	7.Promote staff education by holding regular meetings to inform staff and bring them up to date.	all waterbodies	1987-1991	N	"
	8.Continue to provide information by phone or mail to persons interested in fisheries biology or management.	all waterbodies	1987-1991	E	"

Appendix II. FISHERIES MANAGEMENT IMPLEMENTATION SCHEDULE, 1987-1991, BROCKVILLE DISTRICT

Existing Funding Communicating with the Public

STRATEGY	TACTIC	LOCATION	YEAR	NEW/ EXISTING	ISSUE/PROBLEM ADDRESSED
Increase public cooperation and participation in fisheries management programs.	1.Continue to promote the Community Fisheries Involvement Program (C.F.I.P.).	all waterbodies	1987-1991	E	Increase public awareness of fisheries management programs.
	2.Continue to provide extension services to the public for fisheries management in private ponds (stocking).	all waterbodies	1987-1991	E	"

Appendix III — FISHERIES MANAGEMENT IMPLEMENTATION SCHEDULE, 1987-1991, BROCKVILLE DISTRICT

Additional Funding — Coldwater Sport Fisheries

STRATEGY	TACTIC	LOCATION	YEAR	NEW/ EXISTING	ISSUE/PROBLEM ADDRESSED
Evaluate effectiveness of salmonid stocking program.	1.Assess effectiveness of splake stocking (growth and survival) through index netting.	Lower Beverley L. Otter L. Indian L.	1989,1990 " "	N	Lake trout overharvest.
	2.Assess effectiveness of lake trout stocking (growth and survival) through creel and index netting surveys. (Charleston and Big Rideau to be assessed by Rideau Lakes Fisheries Assessment Unit).	Red Horse L. Otter L.	1989,1990 "	N	"
	3.Assess effectiveness of stocking brown trout in Lyn Creek (growth and survival) through electro-fishing.	Lyn Creek	1989 1990 1991	N	"
	4.Assess effectiveness of brook trout stocking (growth and survival) through index netting.	Mud L. Basin L.	1990,1991 "	N	"
Protect and improve lake trout spawning habitat in lakes being managed for lake trout. (See Loss of Environmental Quality section for other applicable tactics).	1.Inventory and evaluate need for rehabilitation of selected lake trout spawning shoals. Enhance spawning habitat where necessary. (Co-operative project with Rideau Lakes Fisheries Assessment Unit).	Charleston L. Big Rideau L. Red Horse L.	1989 " "	N	Lake trout spawning habitat deterioration.

Appendix III. FISHERIES MANAGEMENT IMPLEMENTATION SCHEDULE, 1987-1991, BROCKVILLE DISTRICT

Additional Funding Warmwater Sport Fisheries

STRATEGY	TACTIC	LOCATION	YEAR	NEW/ EXISTING	ISSUE/PROBLEM ADDRESSED
Establish program for assessing community and angler exploitation on the St. Lawrence River, through the establishment of a St. Lawrence River Fisheries management Unit (St.L.R.F.M.U.).	1.Continue to monitor the status of the St. Lawrence River population of muskellunge by co-operating with New York State Dept. of Environmental Conservation in their muskellunge population studies (forum:St. Lawrence River Sub-committee to the Lake Ontario Committee of the Great Lakes Fisheries Commission).	St. Lawrence R.	1987-1991	N	Protect/enhance St. Lawrence R. fisheries.
Enhance/protect/create key fisheries of the St. Lawrence River (muskellunge,walleye,bass,pike).	1.Monitor feeder creeks in the St. Lawrence River for the presence of spawning walleye as part of a possible population expansion from the east or west.	Sawmill Ck. Jones Ck. Buell's Ck. Johnstown Ck. LaRue Ck.	1988-1991 " " " "	N	"
	2.Rehabilitate feeder creeks (see Tactic 1 above) in the St. Lawrence River being used by spawning walleye.	as above	1991	N	"
	3.Enhance fisheries habitat in the St. Lawrence River by construction of artificial reefs.	St. Lawrence R.	1988	N	"
Monitor walleye populations and continue to improve habitat conditions and recruitment on these waterbodies; use supplemental stocking to improve these fisheries where practical.	1.Rehabilitate walleye in North Crosby Lake by continuing spawning bed rehabilitation projects.	North Crosby L.	1990	N	Protect/enhance inland fisheries.

Appendix III. FISHERIES MANAGEMENT IMPLEMENTATION SCHEDULE, 1987-1991, BROCKVILLE DISTRICT

Additional Funding Warmwater Sport Fisheries

STRATEGY	TACTIC	LOCATION	YEAR	NEW/ EXISTING	ISSUE/PROBLEM ADDRESSED
Determine effectiveness of size limits for smallmouth and large-mouth bass recruitment on inland lakes.	1.Establish rotating index netting program to determine age-class distribution and growth characteristics on a subset of lakes with a size limit for bass (Division 10).	Lakes of Division 10	1988	N	Assess and protect inland bass fisheries.
Establish an assessment program on key bass lakes.	1.Establish a rotating long-term bass creel survey. One water-body every year.	Wolfe L. Newboro L. Whitefish L. Lower Beverley L.	1988 1989 1990 1991	N	"
	2.Establish a rotating long-term bass trap net index netting program. One waterbody every year.	Wolfe L. Newboro L. Whitefish L. Lower Beverley L.	1988 1989 1990 1991	N	"
	3.Assess fish community and angler use on Gananoque Lake through creel and index netting surveys.	Gananoque L.	1990	N	"

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